VOL. LXXX PART ONE

JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

JANUARY 1955

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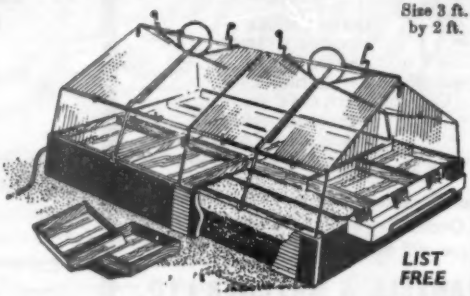

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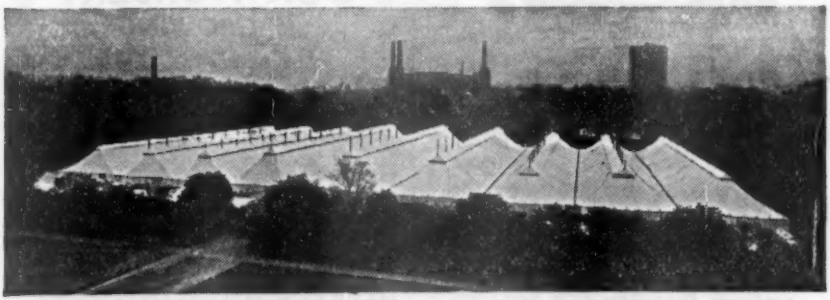

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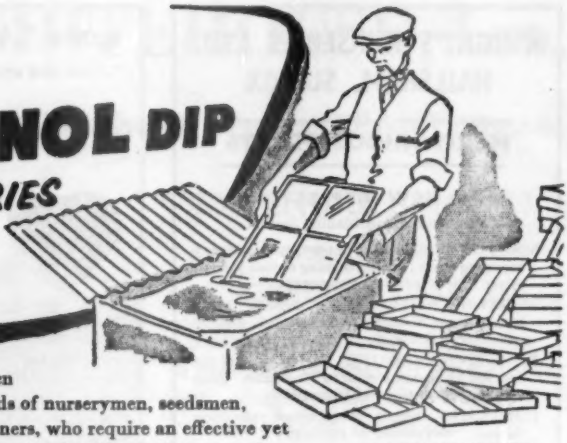

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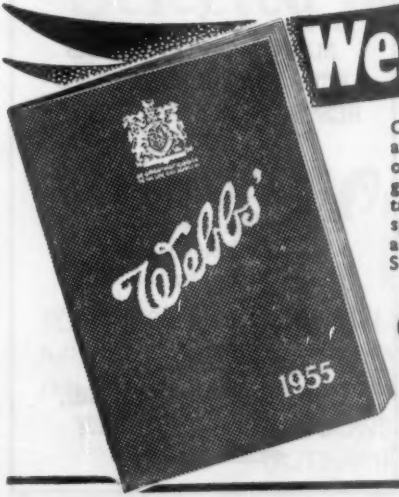

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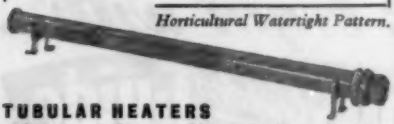

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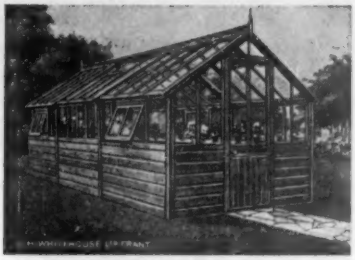

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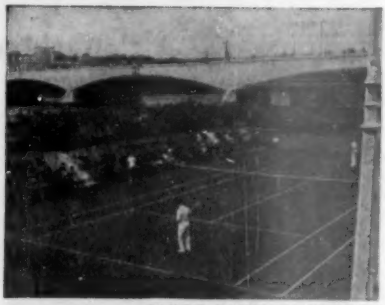

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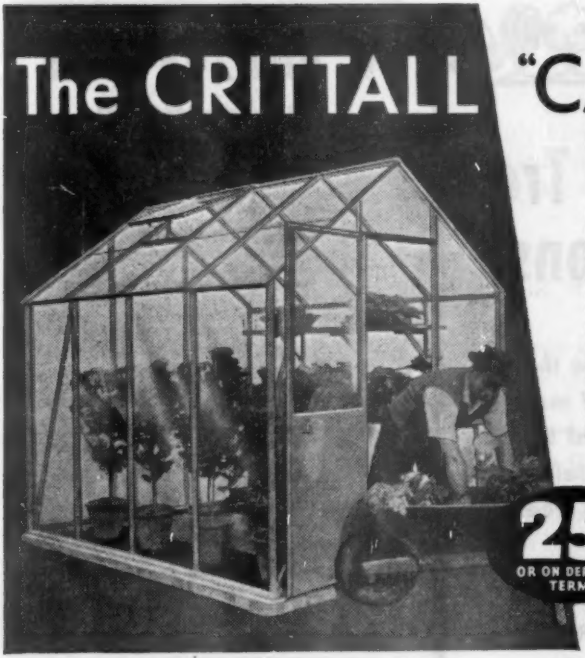

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JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

VOL. LXXX PART ONE

January 1955

THE SECRETARY'S PAGE

ANNOUNCEMENTS—JANUARY AND FEBRUARY

Shows

TUESDAY, January 25 12 NOON to 6 P.M. WEDNESDAY, January 26 10 A.M. to 5 P.M.	Fortnightly Flower Show.
TUESDAY, February 8 12 NOON to 6 P.M. WEDNESDAY, February 9 10 A.M. to 5 P.M.	Fortnightly Flower Show.
TUESDAY, February 22 12 NOON to 6 P.M. WEDNESDAY, February 23 10 A.M. to 5 P.M.	Fortnightly Flower Show. Annual General Meeting at 3 P.M. on February 22. (*See below.*)

Lectures

TUESDAY, January 25, at 3 P.M. "The Production of Hardy Out-of-Season Flowers for Cutting" by MR. H. W. ABBISS, M.B.E., D.C.M., M.M., N.D.H., F.L.S.

TUESDAY, February 8, at 3 P.M. "Our Experience in the Cultivation of Cacti and Succulent Plants" by LT.-GEN. SIR OLIVER LEESE, BT., K.C.B., C.B.E., D.S.O., and LADY LEESE.

Annual General Meeting—The Annual General Meeting to receive the Report of the Council for 1954 and a statement of accounts for that year will be held on Tuesday, February 22, at 3 P.M. The Meeting will be held in the Old Hall instead of in the Lecture Room as in previous years and there should be ample room for all who wish to attend.

Royal Netherlands Society of Horticulture and Botany—The President, THE HON. DAVID BOWES-LYON, V.M.H., was unanimously elected an Honorary Member of the Royal Netherlands Society of Horticulture and Botany at the Annual General Meeting of the Society on October 28, 1954. HER MOST GRACIOUS MAJESTY THE QUEEN OF THE NETHERLANDS is a Patroness of that Society.

The Society is greatly appreciative of this signal honour which has been so graciously bestowed upon our President by the Royal Netherlands Society of Horticulture and Botany.

New Director at Wisley—The Council has appointed MR. FRANK P. KNIGHT, F.L.S., to be Director of the Society's Gardens at Wisley in place of DR. H. R. FLETCHER, who has resigned to take up another appointment. MR. KNIGHT will assume control at Wisley early in January.

"Premio Firenze"—The city of Florence, whose emblem is an Iris, intends to hold an international competition to be known as the "Premio Firenze" for the best new variety of iris. Only new varieties raised or introduced into commerce not earlier than 1952 are eligible. A leaflet giving details can be obtained on application to this office.

The Society's Examinations in 1955—Candidates wishing to enter for the Society's Examinations in Horticulture in 1955 are reminded that the closing dates for entry forms are as follows:—

General Examination in Horticulture, and General Examination in Horticulture for Juniors—Monday, January 10, 1955.

National Diploma in Horticulture—Intermediate and Final Examinations, and N.D.H. Honours—Tuesday, February 1, 1955.

Teachers' Diploma in School Gardening—Intermediate and Final Examinations—Tuesday, February 1, 1955.

The Horticultural Club—The Horticultural Club holds meetings during the winter months, always on R.H.S. show days, at which a dinner at 7 P.M. is followed by a talk or other feature. Details of its first three meetings during 1955 are as follows: On January 25 there will be a Brains Trust, at which MR. ROY HAY will be Question Master; the panel will consist of MR. FRANK HANGER, V.M.H.; MR. JOHN GILMOUR, F.L.S.; MRS. FRANCES PERRY, F.L.S.; and MR. A. G. L. HELLYER, F.L.S. The Scottish National Trust's film of the 1953 Scottish Gardens Cruise will also be shown. On February 22 a number of speakers will take part. COL. F. C. STERN, V.M.H., will show coloured slides of new and interesting plants at Highdown and there will be a demonstration of the projection of stereoscopic slides including a number of Exbury with a commentary by MR. E. DE ROTHSCHILD. On March 22, DR. PETER DAVIS, of the Royal Botanic Garden, Edinburgh, will speak on his 1954 plant-collecting expedition to Turkey. There will be another evening meeting on May 3, and in the summer several excursions to notable gardens have been planned.

Further details may be obtained from the Hon. Secretary, MR. A. J. HUXLEY, 2–10, Tavistock Street, London, W.C.2.

CHANGES OF STYLE

A Note to all Contributors from the Editor

UPON the recommendation of the Publications Committee, the Council have decided that, from the beginning of 1955, *all* specific and infraspecific epithets, including those derived from names of persons and old generic or vernacular names, shall be spelt in the Society's publications with a small initial letter. This conforms to the practice recommended by the International Code of Botanical Nomenclature, and now adopted by Kew and other botanical institutions, e.g. ***Lilium wardii***, and not *Lilium Wardii*; *Lilium martagon*, not *Lilium Martagon*. Group hybrid names in the Latin form will also be written with a small initial letter, e.g. *Camellia* × *williamsii*, but group hybrid names in English will continue to be written with a capital letter, e.g. Lilium 'Backhouse Hybrids' and Lilium (Bellingham Hybrids) 'Shuksan.' Names used generically will continue to be printed with a capital, e.g. Chrysanthemum 'Arnhem,' Rhododendron 'Doncaster,' Apple 'Bramley's Seedling.' Generic names used by themselves will in accordance with present scientific practice be printed in italics, e.g. "With regard to the genus *Primula* it will be seen that . . ." Capital letters will not, however, be used for names which have become part of the English language, e.g. chrysanthemum, dahlia and rhododendron, where any of these words is used by itself in the body of the text, i.e. when not followed by a cultivar name. The rules outlined above will be followed in all the publications of the Society except the Supplement to the *Dictionary of Gardening* and the forthcoming new impression of its main volumes, where, to preserve uniformity, the practice adopted in the first issue will be followed.

NOTES FROM WISLEY

J. B. Paton

THE conifers, like the evergreens discussed last month, provide an invaluable addition to the garden with green, grey and golden foliage. The collection at Wisley, of course, does not compare with the fine ones to be seen in such gardens as Bodnant or Westonbirt, as our climate is inclined be to too dry and our soil too shallow. However, there are some interesting plants to be seen and these notes may help to guide Fellows to them.

On entering the Gardens the visitor will notice the tall pyramidal trees beyond the hornbeam hedge. These trees were planted soon after the Society came to Wisley and though they tend to dwarf the Laboratory they do provide a screen for the glasshouses which otherwise might

be seen from the summit of Battleston Hill. Well represented here is *Chamaecyparis*, the false cypress. This genus is now separated from the genus *Cupressus*, from which it differs mainly in its smaller cones which usually mature in the first year (except for *Chamaecyparis nootkatensis*) and in bearing five or fewer seeds to each scale instead of from six to twenty. It is of interest to note a report that at Bedgebury, in Kent, during the winter of 1940, most of the species of *Cupressus* were killed while those of *Chamaecyparis* survived. Of the forms of *C. lawsoniana*, the Lawson cypress, perhaps the best of the yellows is 'lutea' a finely shaped tree with pale golden foliage and an ideal specimen for lawn planting. Of the green forms one of the finest is certainly 'erecta' with vivid bright green foliage. It forms a narrow pyramidal tree and originated at The Knap Hill Nursery in a batch of seedlings raised from seeds received from California in 1855. Five years later another splendid green form, 'intertexta' of which a specimen can be seen in the Pinetum, arose in Messrs. Lawson's Nursery at Edinburgh. It makes a graceful tree with arching branches and remote widely spreading branchlets the ultimate divisions being less crowded than is usual in the species.

Of the blue forms to be seen near the glasshouses there is the popular 'allumii' with spire-like habit and very glaucous-grey leaf. On Battleston Hill there is 'glauca,' which was received in the Gardens in 1947 after the Chelsea Show, where it had been exhibited by Messrs. Jan Spek of Holland. It has proved to be a very vigorous grower with an attractive bluey-grey leaf. Likewise of rapid growth is the fine columnar type of 'glauca,' which forms a pillar 1½ to 2 feet across. In the Pinetum the form 'fletcheri,' with rather feathery foliage more resembling a juniper, arose as a sport from a cut-back hedge of *C. lawsoniana* in the nursery of Messrs. Fletcher Bros., of Chertsey.

Quite one of the most outstanding species of *Chamaecyparis* is *C. nootkatensis*, making as it does a fine quick-growing tree which retains its branches to the base. It is thus eminently suitable for a screen, a purpose for which it could be used more widely. In its native habitat on the Pacific Coast region of Western North America the Nootka cypress grows to a height of 120 feet and may be 18 feet in girth. It is sometimes confused with *C. lawsoniana*, but the weeping habit is distinctive, the leaves are more coarse, equal or nearly equal in size, produce a distinct odour when crushed and are of a duller green. The male flowers are yellow (not pink or crimson as in *C. lawsoniana*), the cones take longer to mature and each scale is furnished with a triangular, pointed boss, which is absent in *C. lawsoniana*.

In the Wild Garden two varieties of *C. pisifera* were planted by MR. G. F. WILSON. They are *plumosa*, introduced by J. G. VEITCH in 1861, and *squarrosa*, introduced in 1843. These plants which were at one time grown under the generic name of *Retinispora*, have a juvenile type of foliage and form a tree or dense bush.

Situated close by these is a fine specimen of the Japanese *Sciadopitys*

verticillata which is a plant of great interest botanically but not often seen in gardens. It has a restricted area of distribution in Japan mainly in the valley of the river Kiso in Central Honshu. Botanically its interest lies in what, for purposes of convenience, must be called its foliage. This, at first sight, appears to consist of needles or leaves not unlike those of a pine, but which on closer examination are found to be really leaf-like shoots produced in the axils of scale-like leaves. These modified shoots, or cladodes as they are called, function as true leaves. This monotypic genus was first made known to European botanists by THUNBERG, who saw it in cultivation in Japan in 1756. But it was not until 1842 that SIEBOLD described it for the first time and most aptly named it *Sciadopitys*, in reference to the spreading whorls of false leaves resembling the ribs of a parasol or umbrella. This umbrella pine was being cultivated by the Dutch in Java in 1853, when THOMAS LOBB obtained a plant for Messrs. Veitch from the Buitenzorg Botanic Garden and thus was the first to bring it into European cultivation. His plants did not survive, however, and in 1861 J. G. VEITCH and ROBERT FORTUNE both reintroduced this remarkable plant by sending seeds to England. It is difficult of cultivation for it makes a slow-growing tree which is naturally inclined to send out secondary leaders and to branch from the base. At Wisley there is a particularly fine specimen which cones freely and which appreciates the damp acid soil of the Wild Garden. Probably the best plants may be seen at Bodnant.

Also in the Wild Garden is *Metasequoia glyptostroboides*, raised from seeds received in 1948 from China. This genus had been known for many years only in fossilized specimens and it was not until 1945 that MR. T. WANG found living material on the hills of north-eastern Szechwan and the adjacent parts of Hupeh. He reported this discovery to PROFESSOR WAN-CHAN CHANG of the Central University, Nanking, and as a result of a grant from the Arnold Arboretum, PROFESSOR CHANG was able to send his assistant, MR. HSEUH, to collect seeds from these trees. And despite the difficulties of the times some seeds were received in January 1948 at the Arnold Arboretum. This splendid institution generously distributed seeds throughout Europe as well as America. Those received at Wisley germinated freely and there are several plants of this "living fossil" in various parts of the Gardens. The two largest examples at Wisley are now both 19 feet high and have a circumference of 7 inches at 5 feet.

Another "living fossil" is *Ginkgo biloba*. It is most probably of even older origin than *Metasequoia* and it is doubtful if there are any truly native plants of it in existence; most of those to be found in China are thought to occur either as planted trees or as descendants from such. Many of the finest, some of them reported to be over 1,000 years old, are in the vicinity of Chinese temples and palaces. It is known commonly as the maidenhair tree on account of the similarity in the shape of its leaf to the pinnule of the maidenhair fern. At Wisley the two specimens at the eastern end of the Rose Borders have made rather poor growth

and are not typical; usually it makes a fine pyramidal tree with the trunk branching low down to produce branches which are pendulous at their tips.

Of the pines there are one or two species which should be noted. The indigenous *Pinus sylvestris* has many fine representatives on Battleston Hill which, alas, are past their prime and recently a few of their beautiful red-bronze stems had to be removed. Intermingled with these is *P. pinaster*, the maritime pine, a native of Southern Europe which has been cultivated since the sixteenth century. The old trees are picturesque with their dark, deep-fissured trunks which may be naked of branches for two-thirds of their height. Among the two needled pines it is distinguished by the size and the length of its needle and by the curly, fringed bud scales. *P. ayacahuite*, the white pine of Mexico, whence it was introduced by HARTWEG in 1840 when he was employed as a collector by the Society, makes a fine graceful tree which cones freely and is easily distinguished from its near relative, *P. wallichiana*, for so long known as *P. excelsa*, by the basal scales of the cones always being reflexed back to the stalk. Another freely coning species at Wisley is *P. contorta* from the Pacific coast of North America, where it was discovered by DAVID DOUGLAS in 1825 and whence it was introduced about thirty years later. Here it may not be out of place to mention that the theory that pine needles are harmful to plants receives virtually no support from experience at Wisley, where a wide range of plants can be seen growing under the pine trees on Battleston Hill.

Of the silver firs or species of *Abies*, there is on Battleston Hill a young specimen of *A. forrestii*. Introduced in 1910 from Yunnan by FORREST it is a remarkably handsome tree as may be seen from the plant in the western corner of the Rhododendron species garden. The leaves, dark green above, are most wonderfully glaucous silver below.

The common fir of the mountains of Central Japan is *A. homolepis*, the Nikko fir. It has no proved commercial value, but as an ornamental tree it has much to commend it for it survives under all manner of conditions and appears to be very hardy. It has rich purple cones, deeply corrugated branchlets, resinous buds, scaly bark and short notched leaves each with two white bands on the lower surface.

PLANTS OF INTEREST AT WISLEY DURING JANUARY

LABORATORY WALLS

Chimonanthus praecox var. *luteus*
Iris unguicularis
Viburnum foetens

GLASSHOUSES

Acacia armata
„ *baileyana*
„ *drummondii*
„ *pulchella*

GLASSHOUSES—(*contd.*)

Agapetes macrantha
Beloperone guttata
Calanthe varieties
Calceolaria pavonii
Camellia japonica varieties
„ *sasanqua* var. *fragrans*
Coleus thyrsoideus
Cypripedium varieties
Erica canaliculata

GLASSHOUSES—(*contd.*)

Erica ventricosa
Euphorbia fulgens
Jacobinia pauciflora
Jasminum polyanthum
Plumbago rosea
Reinwardtia trigyna
Rhododendron ciliicalyx
„ *mucronatum*
Strelitzia reginae
Trial of *Freesia*
„ „ *Primula malacoides*

SEVEN ACRES

Cornus sanguinea
„ *stolonifera*
Erica species and varieties
Hamamelis species
Lonicera fragrantissima
Salix alba chermesina
„ „ *tristis*

AWARD OF GARDEN MERIT COLLECTION

Hamamelis mollis
Jasminum nudiflorum
Viburnum fragrans

WILD GARDEN

Daphne mezereum
Garrya elliptica
Helleborus niger
„ *orientalis*

ROCK GARDEN AND ALPINE HOUSE

Crocus susianus
„ *tomasinianus*
Cyclamen species
Galanthus species & varieties
Iberis semperflorens
Ranunculus calandrinioides
Ribes laurifolium
Saxifraga varieties
Scilla tubergeniana

BATTLESTON HILL

Erica species and varieties
Hamamelis species
Mahonia bealei
„ *japonica*
„ *lomariifolia*
Prunus subhirtella var. *autumnalis*
Rhododendron 'Jacksonii'
„ *mucronulatum*
Stranvaesia undulata var. *fructuluteo*

The above is a selection of the plants which should be able to be seen at their best during January provided that the weather is not too inclement.

MASTERS MEMORIAL LECTURE, 1954

THE HISTORY OF GARDEN ROSES

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(*Lecture given on September* 7. COL. F. C. STERN, F.L.S., V.M.H., *in the Chair.*)

PART II*

CLIMBING ROSES

THE Hybrid Teas, whose origin and subsequent development was considered in the previous article, have also played a significant role in the climbing Roses whose history will now be surveyed. A number of distinct groups of climbers and ramblers can be recognized, nearly all of which are related in having a *Synstylae* species as one ancestor, to which their climbing habit is due. By far the most important of these species are the Far-Eastern *R. multiflora* and *R. Wichuraiana*, but prior to their introduction, a number of small groups were developed from the European species, *R. arvensis* and *R. sempervirens* and the American *R. setigera*.

The group of Ayrshire Roses was derived from *R. arvensis* (the Field Rose), native in this country and most of Europe. These were rampant climbers with single or double, white to deep red flowers. There is some doubt about the early history of the group and there are many contradictory statements in the literature (see WILLMOTT, 1914). However, most varieties probably arose in the early part of the nineteenth century and were of Scottish origin, BROWN and AUSTIN being two prominent breeders. Characters of *R. arvensis* predominate in all. Some well-known varieties are 'Dundee Rambler' (perhaps a Noisette hybrid) and 'Ayrshire Queen' (said to be a cross with the Gallica variety 'Tuscany').

The Evergreen Rose, *R. sempervirens*, was another source of early climbing varieties. Its use in hybridizing was restricted to a comparatively short period about 1820, in France, where M. JACQUES, at Neuilly, raised such varieties as 'Adelaïde d'Orleans' and 'Félicité et Perpétue.' However, like the Ayrshires, the Evergreen Roses were neglected once the Oriental Synstylae species had been introduced.

Climbing varieties were developed from the sole American representative of the Synstylae, *R. setigera* (the Prairie Rose), by the pioneer American Rose breeders in the period 1830–40. SAMUEL FEAST, of Baltimore, was the most successful and his hybrids such as 'Baltimore Belle' (with, perhaps, a Noisette as the other parent) and 'Queen of the Prairies' (probably a Gallica cross) were widely grown in America, until they were supplanted towards the end of the century by the Oriental derivatives. More recently in America, VAN FLEET and HORVATH have used *R. setigera* in their breeding work. But there are some features

* The changes of style noted on page 3 have not been adopted for Part II, which has been printed in the old style to conform with Part I.

about *R. setigera* hybrids, such as the thin, unattractive foliage and weak flower stalks, which have deterred many from using them in further development. Many hybrids, too, are more or less sterile, notably the early FEAST hybrids, and there is also the additional complication of the functional dioecism of *R. setigera* itself (ERLANSON, 1934).

Other early sources of climbing Roses considered in the first article were the Noisette and Climbing Tea classes, which inherited the climbing character from *R. moschata* and *R. gigantea.*

Climbing Roses of this century fall into three distinct classes in order of origin: the Multiflora ramblers, the Wichuraiana climbers and climbing sports of the Hybrid Teas. *R. multiflora* is not a particularly attractive member of the Far Eastern Synstylae, with its small, white, blackberry-like flowers and tiny fruits, but, nevertheless, it has taken a large part in the development of the more modern non-climbing Rose groups as well as of the ramblers. The wild type with single white flowers was not introduced until 1862, but cultivated Chinese *multiflora* types had reached Europe as early as 1804 (the variety *carnea* of THORY), while *platyphylla* (the Seven Sisters Rose) came in 1815. The various forms of *R. multiflora*, on crossing with the China varieties, Noisettes and other groups grown in the latter half of last century, produced for the most part summer-flowering ramblers with enormous clusters of small flowers like *R. mutiflora*. With the introduction of the red-flowered form, 'Crimson Rambler,' in 1893, from Japan, the colour range was considerably extended and there was renewed interest in rambler breeding for a few years. Typical varieties are 'Tausendschön,' 'Veilchenblau' and the 'Dawson Rose,' the first *multiflora* hybrid of American origin.

But the reign of the Multiflora ramblers was brief, for they were soon displaced from common cultivation by the superior hybrids derived from *R. Wichuraiana*, which was introduced from Japan in the 1880's. The desirable characters possessed by this species are its shiny, disease-resistant leaves and its more prolonged flowering period compared with that of *R. multiflora*. The first hybrids were raised principally in America and France. HORVATH and WALSH were the prominent pioneers in the U.S.A. and were responsible for such important varieties as 'Jersey Beauty,' 'Gardenia' (both from crosses with Tea Roses), 'Dorothy Perkins,' 'Excelsa' and many others. In France at the same period, BARBIER began to work with the new species, it is said as a consequence of seeing HORVATH'S results (SHEPHERD, 1954). He crossed *R. Wichuraiana* with Tea Roses for the most part and produced, for instance, 'Albertine,' 'Alberic Barbier' and 'François Juranville,' varieties which are still widely grown today.

Somewhat later VAN FLEET in the U.S.A. used *R. Wichuraiana* very extensively and of his climbers the triploids 'American Pillar' (with *R. setigera* and H.P. ancestry) and 'Dr. Walter Van Fleet' (with Tea and H.T. ancestry) were very successful. 'New Dawn' is a sport of the latter variety; it is a less vigorous climber, but is recurrent blooming. Many other large-flowered climbers have come from crosses of *R. Wichuraiana* with H.T.s, such as the triploid 'Paul's Scarlet Climber'

and its descendant the tetraploid 'Chaplin's Pink Climber.' Bushy types often segregate out in the later generations from Wichuraiana hybrids and as was noted last time, these were used to advantage in hardy Hybrid Tea breeding by the BROWNELLS. They have also contributed to the cluster-flowered bush Roses.

Varieties derived from *R. gigantea* form a minor group of climbing Roses. Nearly all are rather tender sorts. The early breeding from 1890 to 1910 was done principally in the south of France by NABONNAND and CAYEUX, who crossed the species with Tea Roses (CAYEUX, 1929) and produced such varieties as 'La Follette' (a diploid) and the triploid 'Belle Portugaise.' More recently, the Australian breeder ALISTER CLARK has used *R. gigantea* successfully. As well as climbers, he has created a group of dwarf perpetual-flowering varieties (such as 'Lorraine Lee') through successive backcrosses to Hybrid Teas. These are, however, not sufficiently hardy in northern Europe and most of North America, hence their distribution has been restricted.

An outstanding climbing Rose, quite isolated from all the others, is 'Mermaid,' product of a *R. bracteata* and Tea Rose cross. This has inherited the glossy, disease-resistant foliage of *R. bracteata* and it has the additional merit of producing its large, pale yellow flowers throughout the late summer and autumn. There are very few other recorded hybrids of *R. bracteata* and some of these are doubtfully authentic, but EMSWELLER and his group at Beltsville in the U.S.A. are now using it extensively in breeding work, since this species is the most resistant of any so far tested to the fungal disease black spot (JENKINS, 1954).

The final important class of modern climbing Roses contains the climbing sports of the normal bush Hybrid Tea varieties. These sports are identical with the parent bush variety, except for the more or less well-developed climbing habit. Their chief merit lies in the succession of blooms they bear all the summer. The Wichuraiana hybrids are once-flowering only, like the species, except for a few of the later varieties such as 'New Dawn' and 'Dream Girl,' which are pillar Roses, not real climbers. The climbing Hybrid Teas, though not normally as floriferous as the bush form, do produce blooms throughout the season.

The climbing H.T.s have occasionally arisen following a cross between two varieties, but more commonly from bud-mutation. This has happened in many H.T. varieties both old and new. It is well known that some climbing sports are particularly prone to revert to the bush habit, while others are quite stable. MOREY (1954) has recently pointed out that the few facts available indicate a close correlation between liability to reversion and the proportion of seedlings from climbing sports which are themselves climbers: the sports prone to revert are less likely to transmit the climbing habit to their progeny and *vice versa*. MOREY makes the plausible suggestion, yet to be experimentally demonstrated, that many climbing sports are *periclinal chimaeras* and that their behaviour depends on the number of cell layers carrying the mutant gene.

If only a single external layer is affected, then neither pollen nor embryo sacs will carry the climbing gene, since both are formed from deeper cell layers which will have the dwarf genotype. Moreover, the axillary buds used in propagation are more likely, through accidents in ontogeny, to develop from dwarf genotype cells only, if solely the epidermal layer has the climbing genotype, thereby causing the observed high reversion rate. Mutants in which several cell layers have the climbing genotype, on the other hand, would be more stable when propagated vegetatively and their germ cells would be more likely to be formed from one of the mutant cell layers. Examples of particularly stable climbing H.T. sports are 'Climbing Crimson Glory' and 'Climbing Mrs. Sam McGredy,' and MOREY (1954) showed that both yielded high numbers of climbers in open-pollinated seedlings.

H.T. varieties of bush habit, in addition to these climbing forms, have quite frequently arisen by bud mutation. Table 1 gives an analysis of the H.T. introductions in the twenty-five year period from 1926 to 1950. A complete or partial pedigree is available for 1,443 of the 2,236 varieties. Of these, 411 are said to have arisen as sports, 140 climbing and 271 in which some other character (generally concerning the flower) was affected. That is, a minimum of 18 per cent. of the varieties introduced during the twenty-five years arose by bud mutation.

HYBRID TEAS

ORIGIN OF VARIETIES AS 'SPORTS'

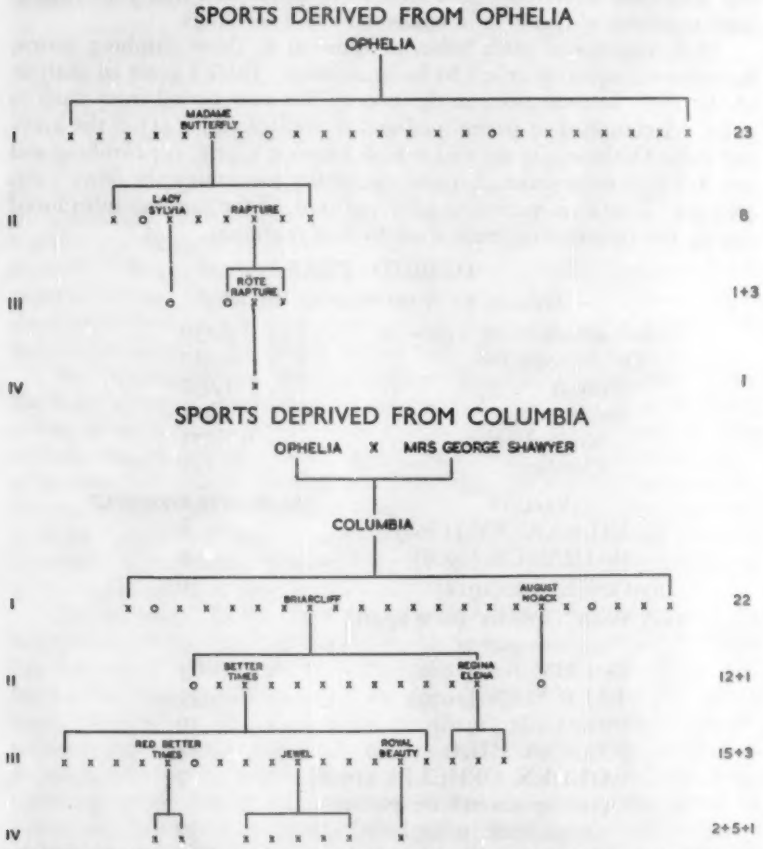
Total introductions, 1926–50	2,236
Origin recorded	1,443
Hybrids	1,032
Sports	411
Normal habit	271
Climbing	140

VARIETY	NO. SPORTS PRODUCED
(i) KILLARNEY (1898)	8
RADIANCE (1908)	9
(ii) OPHELIA (1912)	36
(iii) With 'Ophelia' (or a sport) as one parent	
COLUMBIA (1916)	63
TALISMAN (1929)	39
PREMIER (1918)	19
JOANNA HILL (1928)	12
GOLDEN OPHELIA (1918)	7
Other sports whose parents trace back to 'Ophelia'	30
Total derived from 'Ophelia'	206 (50·1 per cent.)

TABLE 1. Hybrid Tea introductions from 1926 to 1950 classified according to origin by hybridization or bud mutation

It is noteworthy that a very few H.T. varieties have produced practically all the 411 sports. Two old H.T.s conspicuous for the number of sports which have arisen from them are 'Killarney' and 'Radiance' (Table 1), while the outstanding more modern variety in this respect is 'Ophelia.' From 'Ophelia' itself or varieties with 'Ophelia' (or one of its sports) as one parent, have come 206 sports (50·1 per cent.) such as 'Columbia' (63 sports) and 'Talisman' (39 sports). Text Fig. 8 shows the 'families' of sports derived from 'Ophelia' and 'Columbia.'

Undoubtedly one factor favouring this concentration of sports into the 'Ophelia' lineage is the fact that 'Ophelia' and also several of its descendants, both sports and hybrids, are very important greenhouse



TEXT FIG. 8—Diagrams of the relationships of the sports derived from the Hybrid Tea 'Ophelia,' and its seedling 'Columbia.' Varietal names are given only for those sports which have themselves produced further sports. Open circles denote climbing sports, crosses those of normal habit.

varieties. Hence enormous numbers of plants are under observation and there is a much greater chance for the occurrence and detection of any mutations than is the case with less widely grown varieties in the open. But other factors must also be involved.

There is proof for some sports that they are *periclinal chimaeras*. ZIMMERMAN and HITCHCOCK (1951) have demonstrated that the variety 'Better Times,' when propagated from root-cuttings reverts to the parental 'Briarcliff' (itself a sport of 'Columbia'). Similarly, 'Souvenir,' a sport of 'Talisman,' produces that variety from the endogenous buds formed in root-cuttings. It is likely, from the sectorial origin of many sports, that other varieties will prove to be similar periclinal chimaeras in which only the outer cell layer or layers is affected by the particular gene change concerned. As MOREY (1954) points out, this is very likely to be one reason for the many reports in the literature of varieties behaving differently when used as male or as female parent, since the pollen grains are derived from a more superficial layer than are the embryo sacs and are therefore more likely to contain the mutant gene concerned.

Bud mutation, therefore, has been a by no means negligible source of Hybrid Tea varieties. However, there have been no reports yet of attempts to increase the mutation rate artificially by treatment with well-known mutagenic agents such as X-rays, ultra-violet radiation or mustard gas.

THE DWARF POLYANTHA CLASS

The Dwarf Polyanthas, a small but quite distinct class of garden Roses, developed parallel to the Hybrid Teas. The diploid *R. multiflora* (once known as *R. polyantha*) comes into the picture again here (Text Fig. 5). Seeds of the wild species from Japan were sent to JEAN SISLEY, of Lyon, in about 1860. From these he raised some double-flowered seedlings, which were still climbers and once-flowering like *R. multiflora* itself. Then GUILLOT raised a further generation, among which were some dwarf perpetual-flowering types, including the variety 'Pâquerette' (SISLEY, 1879). HURST (1941) concluded from a careful analysis of the characters of these early hybrids that the original cross (Text Fig. 5) had been between *R. multiflora* and the Dwarf Pink China, then commonly grown in the nurseries at Lyon. This dwarf form of *R. chinensis* was of Chinese origin (BUNYARD, 1936) and was introduced from Mauritius to England by SWEET in 1805, where it was known as *R. Lawranceana* or the Fairy Rose. GUILLOT raised the pink-flowered 'Mignonette' from the same lot of seed as the white-flowered 'Pâquerette.'

Most of the Dwarf Polyantha varieties trace back to these two varieties through 'Gloire des Polyanthas' (1887), its seedling 'Mme. Norbert Levavasseur' (1903), which is also descended from *R. multiflora* through its second parent 'Crimson Rambler,' and 'Orleans Rose' (1909), a seedling in turn of 'Mme. N. Levavasseur.' The characters of the Tea Roses were introduced into the group with the varieties 'Cécile Brunner' (1880) and 'Perle d'Or' (1883).

The Dwarf Polyanthas proved valuable garden plants because of

their great hardiness and prolonged flowering period. The individual flowers, although small and generally scentless, were borne in very large clusters and made a good display. All varieties so far examined have proved to be diploids, like their ancestral species. They underwent a steady, if not spectacular, development until about 1936, but very few varieties have been introduced since then. Bud mutations have been a very important source of new varieties in this class, which is second only to the ancient Centifolia and Moss Roses in this respect. Table 2 summarizes the information available on the origin of the Dwarf

DWARF POLYANTHAS

Total number of varieties . .	262
Origin known . . .	150
Hybrids	69 (46 per cent.)
Sports	81 (54 per cent.)

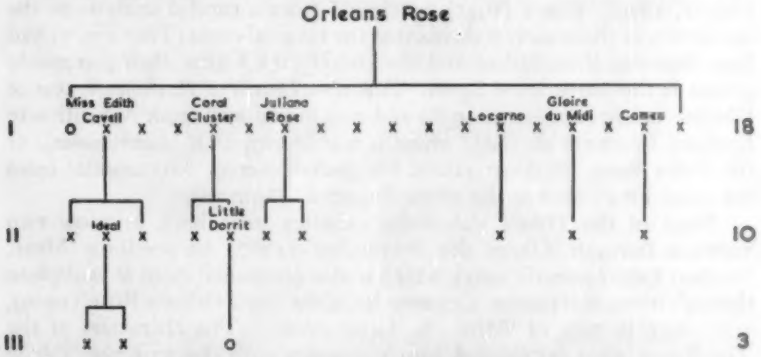
VARIETY	NO. SPORTS PRODUCED
ORLEANS ROSE (1909) .	29 (35·8 per cent.)
PHYLLIS (1908) . . .	14 (17·3 per cent.)
SUPERBA (1927) . . .	12 (14·8 per cent.)
ECHO (1914) . . .	7 (8·6 per cent.)

The remaining 19 sports (23·5 per cent.) are derived from 14 other varieties in ones and twos.

TABLE 2. Origin of Dwarf Polyantha varieties by bud mutation

Polyanthas. There are 150 varieties whose origin has been recorded and 54 per cent. of these are said to have arisen as sports, a very much higher proportion than in any other modern Rose group. As in the

RELATIONSHIPS OF SPORTS DERIVED FROM ORLEANS ROSE



TEXT FIG. 9—Chart showing the family of sports derived from the Dwarf Polyantha 'Orleans Rose.' Symbols as in Text Fig. 8

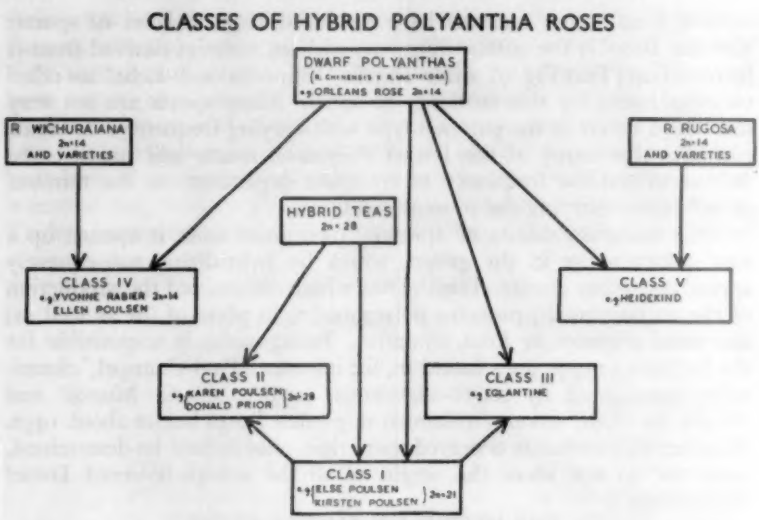
Hybrid Teas, some varieties have produced large families of sports: 'Orleans Rose' is the outstanding one, with 29 varieties derived from it by mutation (Text Fig. 9), while 'Phyllis,' 'Superba' and 'Echo' are other varieties noted for this tendency to sport. Many sports are not very stable and revert to the parental type with varying frequency. It seems probable that many of the Dwarf Polyantha sports will prove to be chimaeras and the frequency of reversion dependent on the number of cell layers carrying the mutant condition.

One mutation should be specially mentioned since it opened up a new colour range in the group, which by hybridizing subsequently spread into other classes. It is the one which determined the production of the anthocyanidin pigment pelargonidin, in place of (or as well as) the usual pigment in *Rosa*, cyanidin. Pelargonidin is responsible for the brilliant orange hues found in, for instance, 'Paul Crampel,' chemically investigated by SCOTT-MONCRIEFF (1936), 'Gloria Mundi' and 'Gloire du Midi,' colours unknown in garden Roses before about 1930. Whether this mutation occurred more than once cannot be determined, since we do not know the origin of all the orange-flowered Dwarf Polyanthas.

THE HYBRID POLYANTHA CLASS

The next major step in garden Rose history was due to the Danish breeder POULSEN, who, in about 1910, started crossing Dwarf Polyantha varieties, particularly those of 'Crimson Rambler' descent, with Hybrid Teas (POULSEN, 1934). His aim was to produce a race of really hardy Hybrid Tea-like plants suitable for outdoor culture in the rigorous climate of Scandinavia and northern Europe generally, and in this he was brilliantly successful. The first of these new hybrids was 'Rödhätte,' introduced in 1912 but not widely distributed until after the War. Its parents were the Dwarf Polyantha 'Mme. N. Levavasseur' and the H.T. 'Liberty.' This was followed in 1924 by 'Else Poulsen' and 'Kirsten Poulsen,' both from a cross of 'Orleans Rose' with the single-flowered H.T. 'Red Star.' These original hybrids retained the cluster-flowered habit of the Dwarf Polyanthas, but the individual flower stalks were longer and the flowers approached the H.T. type in size and form.

The new group soon became known as the *Hybrid Polyantha* class and has undergone a tremendous development in the succeeding thirty years. A good deal of information is available about the kinds of crosses made in this period, much of which has been checked by cytological studies, hence the history of the group is well known, compared with that of any of the earlier classes. LAMMERTS (1947) drew attention to the fact that the Hybrid Polyanthas so-called really contain a number of groups derived from crossing Dwarf Polyanthas with various other classes (Text Fig. 10). Latterly the boundaries between these groups have become less well defined, owing to hybridization between them, but in the initial stages of development of this class they were clear enough, and a classification on these lines aids our understanding of the Hybrid Polyanthas.

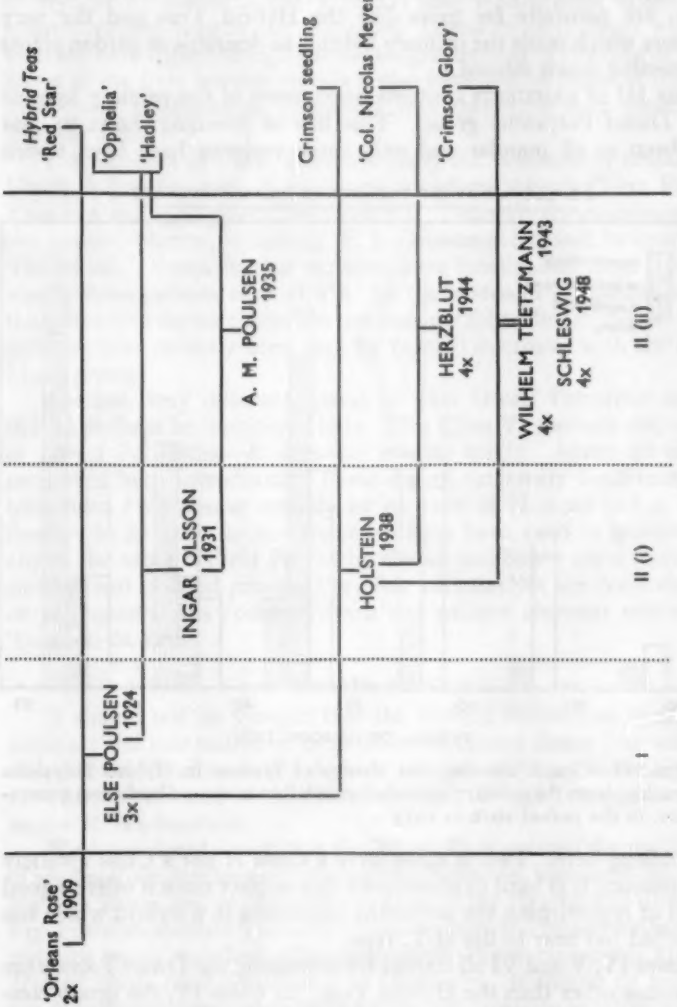


TEXT Fig. 10—Classes of Hybrid Polyantha Roses (after LAMMERTS, 1947)

LAMMERTS' Class I consists of the direct Dwarf Polyantha—Hybrid Tea crosses, like the original POULSEN varieties mentioned above. In 'Modern Roses IV,' there are 44 varieties listed for which this type of origin is recorded and a further 16 varieties which probably belong here but for which information is incomplete. All the 10 varieties cytologically examined have the expected triploid chromosome number (WYLIE, 1954). Many of these primary hybrids are more or less sterile; KORDES (1951a) records that he obtained no progeny at all from many attempts with the variety 'Fortschritt' (the first yellow H. Poly.), while he calls both 'Rödhätte' and 'Else Poulsen' extremely infertile. However, offspring have been obtained from the latter varieties, which have proved by far the most important in subsequent breeding. The descendants of 'Rödhätte' now number 44 and those of 'Else Poulsen' 86 (data from 'Modern Roses IV'). These Class I hybrids quickly became very popular as bedding Roses, their hardiness and floriferousness being outstanding. But the very general lack of fragrance and susceptibility to mildew, inherited from the Dwarf Polyanthas, were undesirable characteristics.

Class II in LAMMERTS' scheme (Text Fig. 10) contains the varieties derived from backcrossing the original hybrids to the Hybrid Teas. Only a very few of the Class I hybrids have been concerned in this further development because of the sterility referred to above. There are 80 varieties which can be included in Class II, for which complete or partial pedigrees are given. The 13 hybrids cytologically examined are all tetraploids, indicating rigorous elimination of aneuploids in the

seedlings, or of gametes with an unbalanced chromosome number in the triploid parent. It is convenient to subdivide this class according to

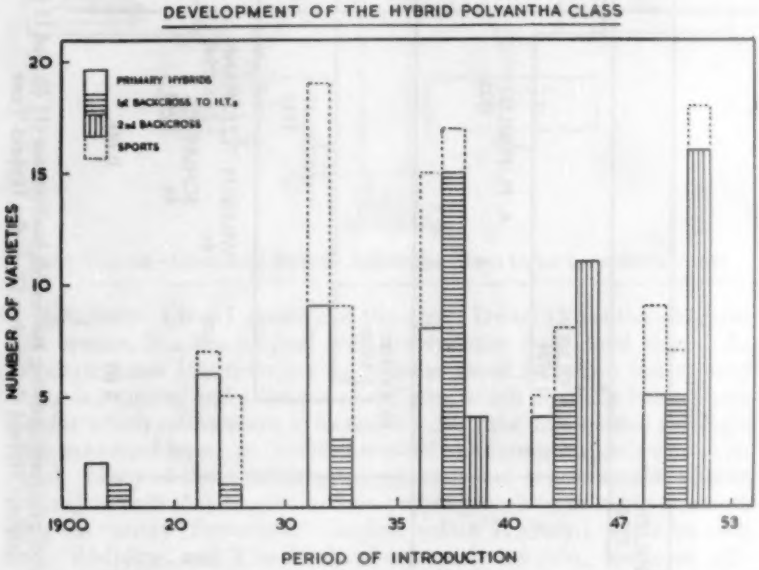


TEXT FIG. 11—Some typical pedigrees showing successive backcrosses (II (i) and II (ii)) of the original triploid Hybrid Polyanthus (I) to the Hybrid Teas

the number of backcrosses to H.T.s which have taken place. Text Fig. 11 gives some typical pedigrees of first and second backcross hybrids from 'Else Poulsen,' and Text Fig. 12 shows graphically the shift of interest in breeding from the Class I hybrid, whose peak period of introduction

was 1930–35, through the first backcross to H.T.s dominant in 1935–40, to the second backcross whose numbers have risen spectacularly since 1940. This progressive neglect of the primary hybrids seems regrettable, since the later hybrids, particularly the second backcrosses, are naturally far more like the Hybrid Teas and the very characters which made the primary hybrids so desirable as garden plants are becoming much diluted.

Class III of LAMMERTS contains backcrosses of the primary hybrids to the Dwarf Polyantha group. This line of breeding, however, has never been at all popular and only three varieties have been traced



TEXT FIG. 12—Graph showing the change of interest in Hybrid Polyantha breeding, from the primary hybrids through first to second backcross generations, in the period 1910 to 1953

which belong here. Two of these have a Class II not a Class I variety as one parent. It is hard to account for this neglect since it offers a good method of replenishing the polyantha characters in a hybrid which has approached too near to the H.T. type.

Classes IV, V and VI all started from crossing the Dwarf Polyanthas with groups other than the Hybrid Teas. In Class IV, the group concerned is that of *R. Wichuraiana* and its hybrids. 'Yvonne Rabier' and 'Ellen Poulsen' (both diploids) are examples of the original hybrids, of which 8 have been traced: they are not unlike the Dwarf Polyanthas, but possess the characteristic shiny *R. Wichuraiana* foliage. From these primary hybrids have come 19 further varieties from crosses with,

principally, H.T.s. Well-known varieties in this section are 'Frensham' and 'Poulsen's Copper,' both with the expected triploid chromosome number (WYLIE, 1954). Another section in Class IV contains varieties of Hybrid Polyantha (Class I or II) and Wichuraiana origin. The original variety here is the tetraploid 'Dance of Joy,' from which 20 varieties have come through one or two generations of crossing to H.T.s. Some of the later hybrids in this group have lost so many of the polyantha (and *Wichuraiana*) characters, that they have been classified as 'Hybrid Teas.'

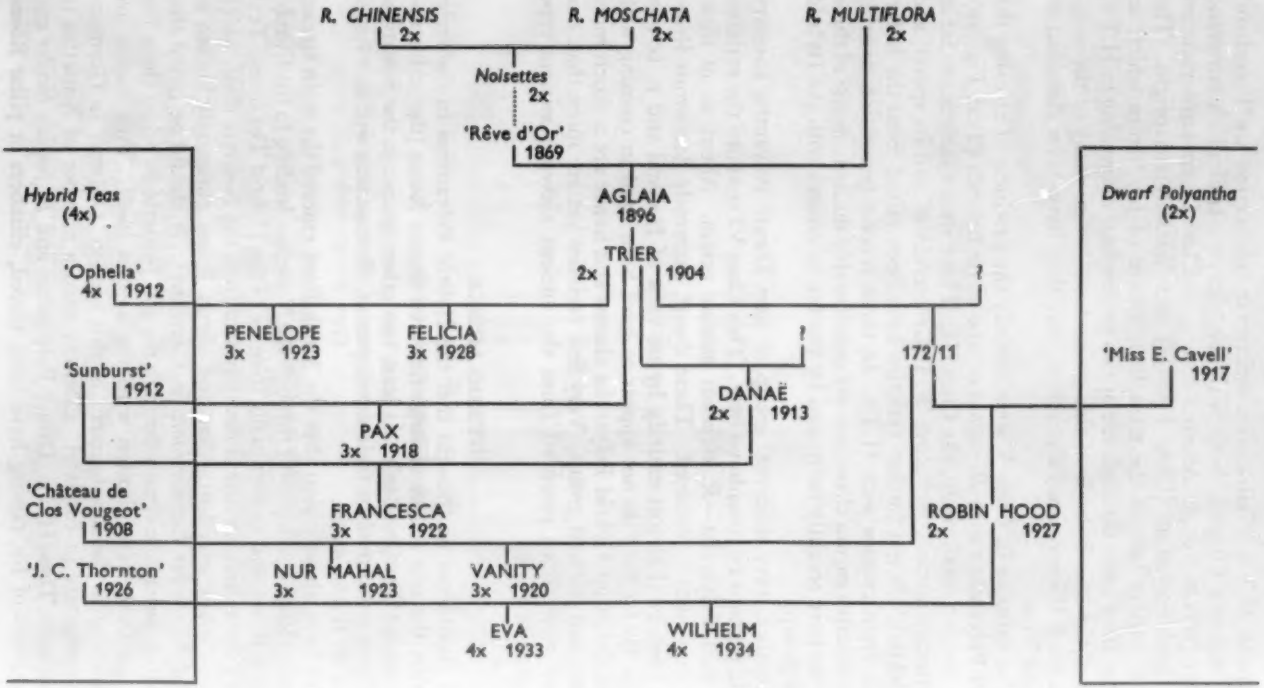
The varieties in Class V were initially the products of crossing the Dwarf Polyanthas with *R. rugosa* or one of its hybrids (Text Fig. 10). This, too, is a small group, like Class III. There are six varieties so far in the primary section, including 'F. J. Grootendorst' and its sports, and 'Heidekind.' Seven further varieties have been raised from the latter, mainly from crosses with H.T.s. In these second generation hybrids the distinctive *rugosa* characters are considerably diluted. Some of these varieties have recently been used by TANTAU in crosses with the Hybrid Musk group.

Another, very different, group of part Dwarf Polyantha ancestry should perhaps be considered here. This Class VI contains the varieties of Dwarf Polyantha—*R. chinensis minima* origin. About 20 of these have now been introduced. These dwarf, extremely floriferous Roses have been bred almost entirely by DE VINK of Holland and P. DOT in Spain. So far they do not appear to have been used in crossing with any of the other Hybrid Polyantha classes and hence are a much more distinct and isolated group. Very few varieties yet are more than one or two generations removed from the ancient *chinensis minima* type 'Pompon de Paris.'

HYBRID MUSKS

It should not be thought that the Hybrid Polyanthas in the strict sense are the sole source of large-flowered cluster Roses (the unfortunately named 'Floribundas'). At least two other species in the Synstylae have been concerned in their development, *R. moschata* and to a lesser extent *R. Wichuraiana*.

We have already seen that the Musk Rose entered the main stream of garden Rose development through the Noisettes, leading to the Climbing Tea Roses and so eventually to some of the Hybrid Tea lines. Text Fig. 13 shows another line of development from the Noisette class, which contains many excellent pillar and shrub Roses commonly known as *Hybrid Musks* (or *Lambertianas* in Germany). It should be noted that the Musk parentage comes through the old Noisette hybrids: there has been no fresh hybridization with the species itself. Two names are outstanding in the development of this section, LAMBERT in Germany and PEMBERTON in England. LAMBERT used a number of Noisettes in crosses with Teas, H.T.s, Dwarf Polyanthas and *R. foetida bicolor* and 26 varieties of his raising have been traced, climbers or pillar Roses,



TEXT FIG. 13—Origin of the Hybrid Musk group

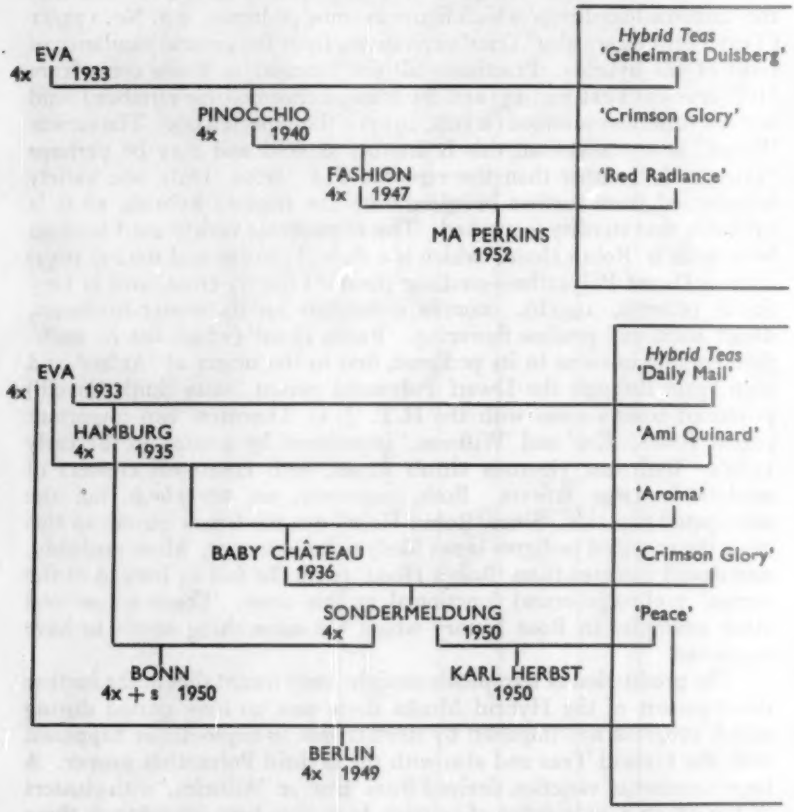
mostly introduced between 1896 and 1920. His first variety, the rambler 'Aglaia,' was used much in his later crosses. This came from the Noisette 'Rêve d'Or' crossed with *R. multiflora*, LAMBERT's aim being to use the hardy qualities of *R. multiflora* to improve the rather tender Noisettes. From 'Aglaia' he raised the important ancestral variety 'Trier,' a pillar Rose which flowered all summer. WULFF and HELDT (1953) found 'Trier' to be a diploid; hence LAMBERT's reported pedigree ('Aglaia' × the H.P. 'Mrs. R. G. Sharman-Crawford') is probably incorrect and 'Trier' is, perhaps, a selfed seedling from 'Aglaia.' These two varieties were used not only by LAMBERT himself, but also by PEMBERTON.

All the PEMBERTON varieties whose origin is recorded have 'Trier' itself, or a seedling, as one parent. It is probably safe to assume that the 'unnamed seedlings' which figure in some pedigrees, e.g. No. 172/11 (Text Fig. 13), are also 'Trier' derivatives, from the general similarity of most of his hybrids. Practically all the PEMBERTON Roses come from H.T. crosses (Text Fig. 13) and the triploid chromosome number found in most varieties examined (WYLIE, 1954) is the expected one. The variety 'Danaë' is an exception; this is another diploid and may be perhaps 'Trier' selfed, rather than the reported H.P. cross. Only one variety is recorded from further breeding with the triploid hybrids, so it is probable that sterility is marked. The PEMBERTON variety used later on by KORDES is 'Robin Hood,' which is a diploid (WULFF and HELDT, 1953) from a Dwarf Polyantha—seedling (from 'Trier' ?) cross, and is very fertile (KORDES, 1951b). KORDES comments on its winter-hardiness, dwarf habit and profuse flowering. 'Robin Hood' (which has *R. multiflora* coming in twice in its pedigree, first in the origin of 'Aglaia' and then again through the Dwarf Polyantha parent 'Miss Edith Cavell') produced from a cross with the H.T. 'J. C. Thornton' two important parent Roses, 'Eva' and 'Wilhelm,' introduced by KORDES in the early 1930's. Both are vigorous shrub Roses, with enormous clusters of moderately large flowers. Both, moreover, are *tetraploids*, not the anticipated triploids. Since 'Robin Hood' was the female parent in this cross the reported pedigree is not likely to be incorrect. More probably, unreduced gametes from 'Robin Hood' (with the full 14 instead of the normal 7 chromosomes) functioned in this cross. There are several other examples in Rose history where the same thing seems to have happened.

The production of tetraploids straight away meant that in the further development of the Hybrid Musks there was no long period during which progress was impeded by sterility due to triploidy, as happened with the Hybrid Teas and also with the Hybrid Polyanthas proper. A large number of varieties, derived from 'Eva' or 'Wilhelm,' with clusters of flowers in a wide range of colours, have now been introduced; these have in many cases been bred by KORDES himself, but TANTAU has also been prominent and, in America, BOERNER. One hundred and twelve varieties are listed in 'Modern Roses IV' which trace back to 'Eva,'

although it is a bare twenty years since this variety was introduced. Text Fig. 14 shows the kinds of crosses that have been made in producing some of the outstanding varieties. In the main, repeated backcrosses to good H.T.s have been made with the aim of improving flower size and shape, while still retaining the cluster-flowered habit and the long flowering season. All these later varieties have likewise proved tetraploid with, in the case of 'Bonn,' one small supernumerary chromosome in addition to the normal 28.

Two important developments in colour should be noted in these Musk—H.T. varieties; first, the distinctive colour, described as coral-peach, of the American Rose 'Fashion,' and secondly, the vivid orange-scarlet colour of 'Sondermeldung' (also known as 'Independence' in



TEXT FIG. 14—Some typical pedigrees showing later development of the Musk group through repeated backcrosses to Hybrid Teas, in America (*upper*) and Germany (*lower*)

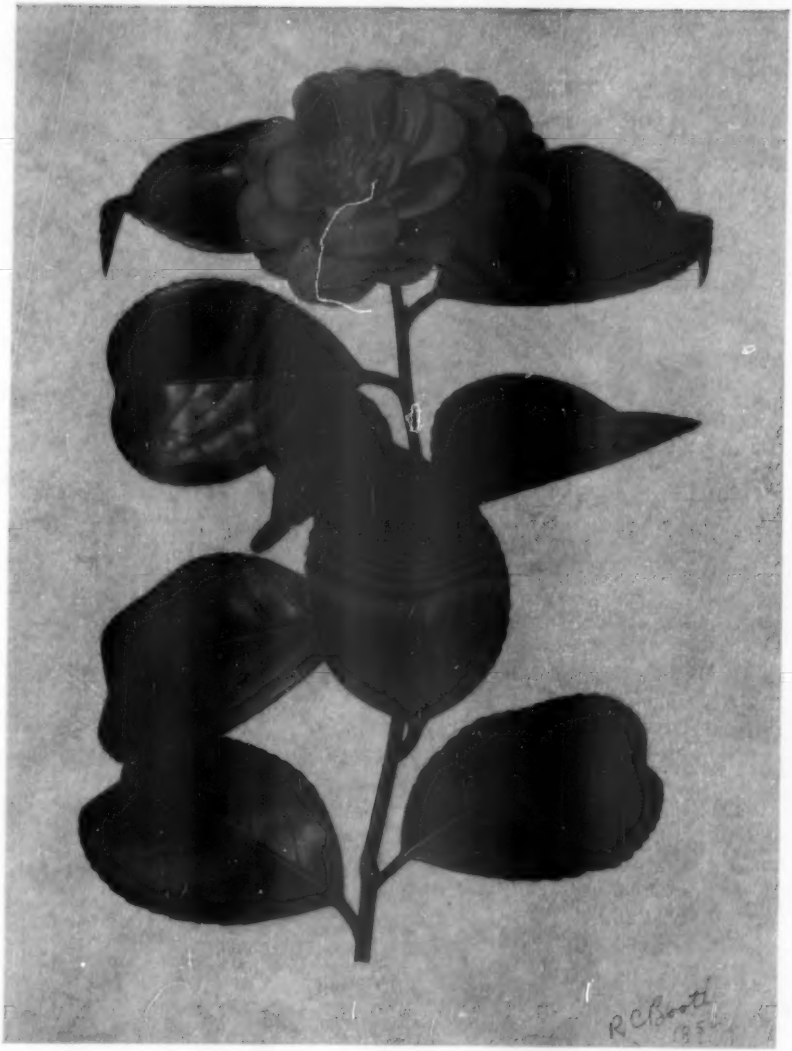


FIG. 1—*Camellia japonica* 'althaeaflora' **A.G.M.,** from a painting by MR. R. C. BOOTH
(See p. 32)

Photo, J. E. Downward

TINTINHULL HOUSE

FIG. 2—Tubs of *Lilium regale* are used as a feature on the west terrace (See p. 27)

Photo, J. E. Downward

TINTINHULL HOUSE

FIG. 3—One of the main axes of the garden showing the well-planted paved terrace leading to the pond garden (See p. 30)

FIG. 4—The main axis of the garden showing the fine façade of the house and the simple circular pool (See pp. 24, 28)

Photos, J. E. Downward

FIG. 5—The long walk photographed from the house, showing the sculptured eagles and the carefully clipped pyramids of box (See p. 24)

FIG. 6—One end of the pond garden showing how a flat garden site can be varied by the use of several shallow steps (See p. 30)

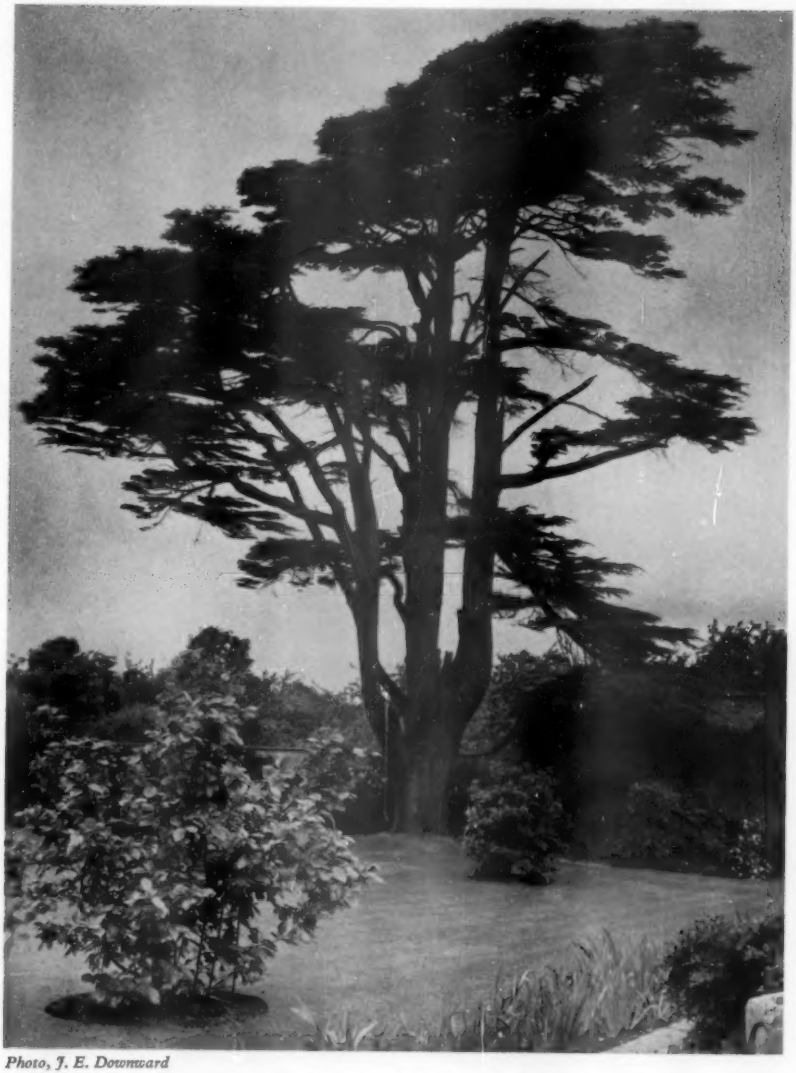
Photos, J. E. Downward

FIG. 7—The garden loggia with the simply planted reflecting pool and one of the yew-backed borders (See p. 29)

FIG. 8—Rose 'Celestial' underplanted with purple geraniums (See p. 31)

Photos, J. E. Downward

FIG. 9—Well-proportioned steps, a simple well-head and flower-pots emphasize the architectural feeling of the garden (See page 30)



Photo, J. E. Downward

TINTINHULL HOUSE

FIG. 10—A giant cedar dominates the garden, its interesting habit silhouetted against the sky (See p. 26)

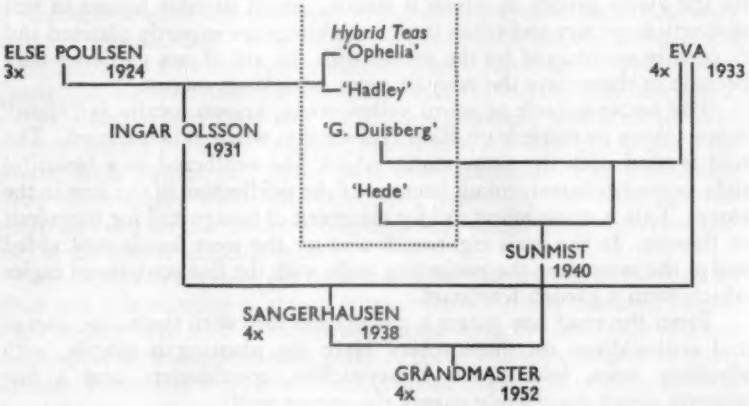
Photo, J. E. Downward

FIG. 11—*Cotoneaster franchetti* var. *sterniana*, which received an Award of Garden Merit (See p. 34)

this country). Unpublished work of MRS. DAYTON at Bayfordbury shows that this variety contains pelargonidin as well as the normal cyanidin. The former pigment was responsible, we saw, for the orange colour of the Dwarf Polyantha 'Paul Crampel' and its allies. The occurrence of pelargonidin in 'Sondermeldung' is perhaps due to an independent mutation, but this must have occurred at least as far back as 'Eva,' since KORDES (1951b) states that both 'Eva' and its seedling 'Hamburg' very occasionally produced orange-cinnabar coloured seedlings. 'Baby Château,' one parent of 'Sondermeldung' and two generations removed from 'Hamburg,' has several other descendants with orange shades, such as TANTAU'S 'Cinnabar.' Both 'Fashion' and 'Sondermeldung' are being widely used in breeding at the present time and we may expect many new colour combinations in the near future.

Another notable feature in some of the later Hybrid Musks is their pronounced scent, for instance, in 'Fashion.' This is in marked contrast to the almost universally scentless true Hybrid Polyanthas.

These recent German and American Hybrid Musks have also been crossed with the true Hybrid Polyanthas at a steadily increasing rate. Text Fig. 15 shows a typical example of this line of development. Fifty-one varieties had been introduced up to 1953 recorded as having this combined Polyantha—Musk origin.



TEXT FIG. 15—A pedigree to illustrate the recent merging of the Hybrid Polyantha and Musk groups

The other species mentioned as a source of the cluster-flowered character was *R. Wichuraiana*. We have already noted that this species was concerned in the development of one section of the true Hybrid Polyanthas. However, dwarf bushy types with clusters of small to medium-sized flowers have also appeared from crossing H.T.s with

Wichuraiana hybrids. These have often been called "Hybrid Polyanthas," but, of course, *R. multiflora* in this case does not come into the picture at all (unlike the situation in the so-called Hybrid Musks). An example is 'Johanna Tantau' (1928) from a cross of 'Dorothy Perkins' and 'Ophelia' and this has given rise to a number of further hybrids such as 'Swantje' and 'Goldregen.' Some of the BROWNELL varieties also come in this category.

(To be concluded)

THE SMALLER GARDEN IV

TINTINHULL HOUSE

Lanning Roper

TINTINHULL, near Yeovil, in Somerset, was given to the National Trust in 1954 by MRS. P. E. REISS. It is outstanding not only for the architectural interest of the seventeenth-century house, with a fine façade on the west front dating from the early eighteenth century, but for the lovely garden in which it stands. Small liveable houses of real distinction are rare and when the surroundings are expertly planned and faultlessly maintained by the owner with the aid of one gardener they become in these days the envy of many with large estates.

The house is built of warm yellow stone, known locally as "Ham" stone, taking its name from Ham Hill nearby, where it is quarried. The roof is tiled with the same stone, which has weathered to a beautiful rich, yellowish-brown colour because of the oxidization of the iron in the stone. This is an excellent foil for the green of foliage and for the colour of flowers. In the early eighteenth century the west façade was added and at the same time the projecting walls with the fine sculptured eagles which form a garden forecourt.

From the road one enters a paved courtyard with the house, garage and outbuildings on three sides. Here the planting is simple, with climbing roses, hydrangeas, honeysuckles, cotoneasters, and a fine wisteria which completely covers the garage wall.

One can either enter the garden to the north by a gate, or enter the house and approach the main part of the garden, the central axis of which is centred on the west façade. I choose the latter, as Tintinhull is a good example of the careful integration of house with garden. The principal rooms all look over the west garden scheme and, from various parts of the garden, many of the vistas are enhanced by the beauty of the façade with its sculptured eagles. (Figs. 4, 5.)

Leaving the house we enter the long walk, which was laid out in the early nineteen-hundreds by DR. S. J. M. PRICE, who was a keen botanist

and a distinguished landscape architect, if we are to judge by the layout. The walk leads from the front door through a series of four gardens to a wall of bay clipped to form buttresses which shelter a garden seat, from which the full beauty of the façade of the house can be enjoyed. Each of the four gardens is quite different in character and treatment, yet there is unity of design. Proportion is important in garden design and at Tintinhull this is very evident. The central path is correct in width for the size of the flanking lawns and borders. The borders are the right width for the height of the walls, which in turn are in scale with the house and the areas they enclose. Terraces are broad and generous. Steps are broad and the rises shallow, giving a feeling of space which helps to emphasize the change of level on what is a relatively flat site. This ingenious treatment of a flat garden is a feature to be noted and one that should be helpful to many gardeners who are confronted with similar problems.

The soil is lime-free loam of excellent tilth as the result of long cultivation. Hop manure, bone meal and hoof and horn are liberally used and farmyard manure obtainable from a nearby farm is stacked and well rotted. Peat moss as a mulch holds moisture and is of course ideal for azaleas and heathers. Compost and leaf-mould are being used increasingly and as there are relatively few trees to provide the latter, other sources are relied upon, even though cartage is involved.

Rainfall is moderate to heavy. Generally little watering is necessary save for new planting. Winters are as a rule mild but the last one did some damage. *Dierama pulcherrimum*, which has been so well used at Tintinhull, suffered particularly. Ceanothus was cut back but not killed, as was *Abutilon vitifolium* and *Callistemon speciosus*, which all suffered severely from frost-burn. Agapanthus in tubs suffered but those in the ground were untouched. With these few exceptions other plants survived surprisingly well. At Tintinhull, however, the emphasis has generally been on the selection of plants that would grow with ease and not on the tender difficult ones.

MRS. REISS has a special gift for selecting and placing plants to create an effect and her planting is always carried out with this in mind. Rarity is not an object in itself nor does she succumb to the hundreds of plant innovations which appear each year. A plant is always judged by strict criteria. First, will it grow well and flourish in the site proposed? Is it the right size and scale for a moderate-sized garden where plants are never so crowded that their full beauty is not attained? Is it the right colour? The fact that a colour is lovely in itself is not enough. The results speak for themselves. If a plant is distinguished in form and texture it is used boldly and often repeated, this making a unity of design in planting which is pleasing and satisfying. This type of gardening will not appeal to the collector of rare plants but then the objective here is quite a different one. Tintinhull is definitely a garden for effect. MRS. REISS is not afraid of repeating good plants and because it is skilfully done there is never monotony. There is no rock-garden,

no collection of small rarities, because the garden has been conceived on bold flowing lines and these do not play a part in the scheme. The result is a garden of dignity, repose and harmony. It is never cluttered nor "busy."

MRS. REISS once said to me that she thought above all else a garden ought to be a place to sit and relax. Tintinhull bears out this principle. It was designed for this purpose with numerous seats at vantage-points from which the garden can be enjoyed. There is a feeling of well ordered peace and space with vistas with lots of sky. Secondly, the garden shows that she puts into practice what she advocates, for it is the direct result of many moments of contemplation and criticism of what is being created. If a branch upsets a composition it is removed. If a mass of grey foliage is too large for the purple rhus next to it, the former is brought under control. If a tree or shrub outgrows its position, it is removed. There are few if any half-measures. This type of gardening takes both character and self-discipline. It also requires keen observation and, above all, the ability to sit and to look and to think. It takes courage to remove a full-grown shrub in excellent health because it is too large and to start again. It takes character to deny oneself a lovely new rose because the colour does not blend with the border where it is to be planted, or because it is as yet untested as a garden plant. This is an intellectual approach to gardening which has been arrived at through long experience, both here and earlier, in another fine garden in Gloucestershire where many lessons were learned.

There are few big trees on the site. Two large *Quercus ilex* planted side by side have grown into one broad, rounded mass, which makes a wonderful background for flowering cherries, rose species and other shrubs. The most has been made of these trees and they form a background from three directions, have the advantage of being well furnished with branches low down and of course are evergreen. In the garden to the north of the house there is a giant cedar. It is indeed fortunate to have such outstanding trees to dominate the garden when there are only a few major ones. The horizontal masses of blue-green foliage, so characteristic of a cedar, are a striking contrast to the rounded form and the deep lustrous green of the live oak (Fig. 10).

Bordering the long walk are rounded cones of box which have grown so that they encroach on the path and break the long straight lines. This, time has done, but it is very effective and is an idea which could be readily borrowed, but it should be remembered that box is excellent for this purpose because it is slow growing and can be heavily clipped to keep it under control. With a faster growing bush the path would too soon be overgrown.

The façade of the house is simply planted so as not to mask the distinction of the architecture with its pilasters and mullioned windows, and this is true of the garden walls and other features. Single specimens of a red rose, a huge white-flowered *Clematis henryi*, *Callistemon speciosus* and *Fendlera rupicola* stand out against the yellow stone. Four large tubs

on the paved terrace are filled with *Lilium regale*, which last year bore up to twenty spikes each. Lilies do well here and large numbers of young bulbs now reaching flowering size have been planted throughout the garden to give accents of white. Each year one tub is replanted, the offsets providing stock for the garden. The tubs are given an annual mulch of well-rotted manure or spent hops and bone meal (Fig. 2).

At one end of the terrace on either side of the gate *Clematis macropetala* grows in inverted chimney pots, which make unusual but practical flower pots because of their depth.

The first garden, really a courtyard, is enclosed with walls of brick added at the same time as the west façade. The central path with box trees is flanked by rectangular panels of grass with generous borders along the walls. The left-hand wall is planted with a few shrubs including a good specimen of *Hydrangea quercifolia*, Rose 'Albertine,' chaenomeles, Philadelphus 'Belle Etoile' and 'Boule d'Argent,' tree paeonies and lilies. Bergenia is used for edging. On the opposite side is a *Magnolia* × *soulangiana*, *Akebia quinata*, *Chimonanthus praecox*, Ceanothus 'Delight,' and honeysuckle. In front Rose 'Peace' alternating with clumps of agapanthus are grouped with *Choisya ternata*, *Viburnum fragrans* and *Corylopsis willmottiae* with here and there the lovely graceful spikes of *Lilium regale* and *L. henryi*. Bergenias, epimediums and lavender are used for contrasting colours and textures of foliage. In spring these borders are gay with the yellow Tulip 'Mrs. Moon' and Iris 'Wedgwood.' Epimediums are particularly good as they make a low thicket of delicate heart-shaped leaves which often turn brilliant colours in the autumn and the berberis-like flowers in spring are lovely. They are accommodating plants, growing in either sun or partial shade and multiplying rapidly. Here they flank the gateway leading into the next garden which is again open in the centre with lawn and box trees edging the central path. The wall continues to the left but to the right there is a shrub border with a grass path dividing it and leading to the pond garden. This is the second axis of the garden terminating to the north in a garden loggia which overlooks a long rectangular pond. In a small garden this use of long vistas from one section to another increases the feeling of space and leads the eye from one garden to another. Secondly, these axes are useful means of access and Tintinhull is so cleverly laid out that one may wander from garden to garden in a logical progression without retracing steps. This often makes a garden seem larger than it is as is the case here.

In the middle of the wall border is an armillary dial on a pedestal base which is the focal feature of the vista across the long pond from the loggia. This border is largely given over to ericaceous plants, including heathers, azaleas, meconopsis, martagon lilies as well as *Prunus subhirtella autumnalis*. A large plant of *Berberis darwinii atropurpurea* is particularly lovely when it is scattered with the star-like scented flowers of *Clematis flammula*, which grows over and through it from the other side of the wall. At the far end the *Quercus ilex* mentioned above forms

a sheltered home for a mixed planting of cyclamen, both *coum* and *europaeum*, and self-seeded columbines and foxgloves. In the border opposite, cistuses do well in conjunction with lilacs, *Romneya coulteri*, *Rosa moyesii*, beloved for its sealing-wax red hips as well as its flowers, *Rosa rugosa*, yuccas for foliage and the big stalks of white pendulous flowers, flowering cherries, hemerocallis, *Lobelia cardinalis* and 'Huntsman,' and clumps of lilies.

Four steps lead to a lower level where a small rectangular garden is devoted to azaleas underplanted with ericas and polyanthus, with here and there spikes of purple martagons. *Rosa hugonis* had seeded itself in the wall. The *Quercus ilex* cast a pattern of light and shadow, ideal for azaleas. There is little in the way of upkeep here as the plants require little attention save an occasional mulching. Heathers make a useful ground cover and the colours blend well with the autumn colouring of the azalea foliage. A clipped yew hedge separates this garden from the last on the long walk, a little square, formal garden enclosed in yew hedges. Set in the paving in the centre is a round pool with a jet of water (Fig. 4). Two carefully placed clumps of agapanthus are perfect in their foliage and carry out the blue colour scheme of the Spanish iris and later the hydrangeas in the four corner beds. *Lilium regale* is particularly effective here against the clipped yew, masses of them providing interest between the flowering of the irises and the hydrangeas. Beyond the pool, and again enclosed by yew, is a bench tucked away in a recess of clipped bay and faced on either side of the central path by more blue hydrangeas edged with loose borders of *Stachys lanata*. Viburnum 'Park Farm Hybrid,' *Senecio greyi*, hostas, bergenias and ferns border the shady stone paths and offer pleasant contrasts of foliage in a part of the garden which is a favourite place to sit and look back at the façade of the house. Again the planting has been done with an eye to easy maintenance.

To the north, on a slightly lower level, but on the same axis with the round pool, is the vegetable garden and beyond it a charming vista into an old orchard—so typical of Somerset. This is the third main axis of the garden. The transition from the pool garden to the vegetable garden has been cleverly handled by constructing a low terrace. Two *Malus floribunda* flank the steps, one red, the other light pink, and at the ends of the terrace are standard *Viburnum carlesii*, rising from a loose hedge of hydrangeas and a few gallica roses in front. The bank of the terrace is covered with alpine strawberries, which are perfect plants for this purpose as they grow in either sun or shade and quickly carpet the ground, no matter how steep, with their long runners.

Over the central path at the foot of the steps an arch is formed by two pleached liquidambars. These are flanked by quince and plum trees underplanted with square beds of lily of the valley. Espaliered apple trees fronted by borders of roses line the two cross-walks and partially screen the neat rows of vegetables. This kitchen garden is small but adequate and its neat appearance is in keeping with the rest

of the scheme. A short flight of steps leads up to the pond garden, formerly the site of a tennis court.

The pond garden is rectangular in shape with a garden loggia of Ham stone built against the wall at the far end and facing south. This wall is an excellent place to grow sun-loving plants and there are good specimens of *Salvia grahamii*, *Phlomis fruticosa*, *Piptanthus nepalensis* and *Abutilon vitifolium*, the last unfortunately having suffered last winter. On the loggia itself there is a purple vine which fruits freely and Rose 'Alan Chandler.' Pots of lilies, tigridias and geraniums in variety are massed about the loggia. The pool is a long rectangle, like the garden itself, and is simply planted with pink and yellow water-lilies and a few clumps of *Iris Kaempferi* for height. There are hundreds of goldfish which multiply each year at a great rate, and it is fun to sit in the loggia and watch the fish in mass formation gleaming in the sun as they swim in schools up and down the pool. Large flower-pots, thinly painted with white so that a gleam of red comes through from underneath, are filled with *Francoa racemosa*, a lovely but rather tender perennial from Chile with branching panicles of white flowers. The pots are stored in winter in the garden house, where they get sufficient protection (Fig. 7).

On both sides of the pool there are wide strips of well-kept lawn and mixed borders against the 8-foot yew hedges which make an excellent background. The borders are designed to be attractive throughout the year. The west border is the older of the two and is carried out in a colour scheme of yellow, blue and purple with masses of silver and grey foliage and white for accent. *Rhus cotinus foliis purpureis* and sea buckthorn are lovely side by side, the plum-purple and the silver-grey being an excellent foil, and the contrast of the delicately textured rounded leaf with the narrow linear one is a delight. There is a framework of shrubs, including *Senecio greyi*, santolinas, lavenders, cytisuses, *Rosa rubrifolia*, the handsome *R. rugosa* 'Blanc Double de Coubert' and 'Frensham.' Delphiniums in shades of blue and mauve are lovely with the smoky yellow of *Thalictrum glaucum* and the creamy-white of *Clematis recta*. Huge white paeonies, masses of purple phlox, and blue and purple penstemon are a few of the other flowers.

The opposite border is an interesting contrast. A large laburnum at one end gives it scale and height. *Potentilla villmorinii*, Ceanothus 'Gloire de Versailles,' Rose 'Nevada' and Hypericum 'Rowallane,' form a permanent shrub background. Veronicas and erigerons in variety, lupins, *Aster amellus* 'King George,' and *Iris pallida* var. *dalmatica*, provide a succession of blues, mauves and purples. Yellow roses, and later a few yellow and deep purple dahlias, keep up the colour scheme. High masses are brought well forward and there is a natural rhythm in the groupings.

In both these borders great thought has been given to foliage, so that they are always well clothed and interesting even though there may not be masses of flowers. Purple sage, santolinas, *Stachys lanata*, *Cineraria maritima*, ornamental grasses, yuccas, artemisias, bergenias, hostas, rue,

and the wonderful ribbed leaves of the too little-known *Veratrum nigrum*, have all been used, while in many borders they would have been supplanted by colour.

The design of the pond garden shows an excellent sense of proportion, as the relationship of the size of the pond to the areas of grass is satisfying, and the borders are right in width for their length and for the height of the hedge behind them. Even the masses of plants in the borders are in scale with the whole conception. The openness of this garden has always appealed to me for it is restful with its wide expanse of water and sky. Again there is a lovely view of the upper part of the house which in a curious way dominates the garden.

From the pond garden there is access to the cedar garden which lies to the north of the house. This was completely undeveloped when Tintinhull House was purchased by the REISSES in 1933. A muddy path skirted the house and there were no flowers. Fortunately, there were good walls to the east and north and the fine cedar. It was decided to treat this area as simply as possible with the centre of it open and devoted to lawn.

Entering from the forecourt of the house there are a few broad steps down to a wide paved terrace which runs along the north side of the house and leads to the pool garden making a long vista as one enters from the courtyard. Several very wide steps have been introduced between the two gardens and this creates an illusion of a definite change of level although actually it is very slight (Figs. 3, 6). Again, the proportion of the steps is carefully worked out to emphasize the change in level. The width of the terrace is generous and this prevents it from becoming merely a paved path. In the middle of the terrace are several large yew trees underplanted with hypericums and the white perennial lathyrus which springs from among the paving in a delightful informal tangle, softening the architectural lines of the terrace and the steps.

The wall of the house is nearly covered with an old plant of Rose 'Mme. Gregoire Staechelin,' its huge, soft, pink blooms striking against the warm tones of the stone. At its base is a simple but effective planting of *Cotoneaster horizontalis* which makes a loose fringe on the paving. Beyond the house it is backed by a fuchsia hedge made from cuttings taken in 1934 from an old specimen plant found there. This hedge suffered during the past winter and had to be cut back hard.

The line of the terrace on the lawn side is unbroken save by a clump of *Magnolia stellata* and forsythia, which makes an unusal combination of white and gold in spring. *Cotoneaster horizontalis* is used as a ground cover, softening the line of the paving and cleverly linking up with the planting on the other side by the house. In the lawn are three magnolias, *soulangiana*, its variety *lennei*, and *denudata*. Save for these the garden is open with borders on three sides.

Near the steps into the courtyard there is a well-head backed by *Cornus kousa*, *Hydrangea hortensis* and a box (Fig. 9). *Lavandula stoechas*, bergenias, acanthus and iris, form a pleasant group of foliage, contrasting

in shape, colour and texture. This east border continues with masses of philadelphus, ceanothus, pale pink paeonies, cytisus, hydrangeas, lilies, clematis, Prunus 'Amanogawa erecta' and hybrid musk roses, 'Francesca,' 'Felicia' and 'Prosperity.' In June *Allium albopilosum* is a feature. There is nothing small or "bitty" about the planting for it is in scale with the high wall behind it. A narrow stone path separates the border from a long bed of yellow and mahogany-coloured irises, in turn edged along the lawn with flat paving-stones. These make the borders throughout the garden easy to care for and allow loose masses of plants, which would otherwise kill grass and make mowing difficult, to spill out over the stones.

It is really the huge cedar tree on the far side which dominates this garden and brings it into scale with the house. In spring there are sheets of crocuses under the cedar. Along the wall behind it is a shrub border fronted by a curving stone path. There are old roses, including Gallicas, *centifolia bullata*, 'York and Lancaster' and the lovely extremely fragrant *spinosissima* 'William IV.' *Mahonia bealii* is a good shrub, for it gives depth and character to a border in summer with its glistening dark green foliage, a marked contrast to the lighter green of rose leaves, and in winter clothes the emptiness and pushes up its racemes of lily of the valley scented flowers in February and March. There is an exceptionally good bit of colour planting, at its best in June and early July. A spreading bush of Rose 'Celestial' with its bluish green foliage, clear pink blooms and elegantly shaped buds is planted next to a great mass of deep purple *Rhus cotinus foliis purpureis*, underplanted with mauve and purple geraniums (Fig. 8). *Euphorbia wulfenii* is another excellent foliage plant, glaucous blue with a fine habit of growth, and in spring lovely chartreuse-green flowers in marked contrast to the bluish leaves.

The end of this border linking the cedar garden to the pond garden is planted with weigelas which flower at the same time as the *Ceanothus dentatus*, growing on the wall at the back. White, yellow and bronze tulips in spring are a splash of colour and in autumn there are pots of *Lilium speciosum*, plunged in the front of the border for late effect, and Hypericum 'Hidcote.'

A high yew hedge separates the cedar garden from the pond garden and it again serves as a background for a mixed border, which is very different in its colour scheme from the others. A flowering cherry "ties" the border to the higher planting behind it and it is a sight in spring when the mass of pale pink blossoms stand out against the dark foliage of the yew tree. This has been carefully thought out and there are other places where the same principle has been used. Bushes of 'Zephyrine Drouhin,' 'Fellemberg,' 'Dainty Maid,' 'Salmon Spray' and 'Frensham,' give a long succession of bloom and are good colour notes in a border devoted to blues, mauves, purples, pinks, and reds. Other shrubs include *Berberis darwinii atropurpurea*, and *Spiraea japonica* 'Anthony Waterer,' with flat corymbs of brilliant carmine which has both a long and a late blooming period. Deep purple *Clematis jackmanii*

on wire umbrella frames has long been a feature of this border but they require rather a lot of training and care when grown in this manner and so are being discontinued. Lythrum, delphiniums, deep purple phlox, sidalceas, veronicas in variety and mauve and crimson penstemon are a few of the many smaller plants. Violet Dutch iris are followed by madonna, martagon and regal lilies. Here, as in all the rest of the garden, plants are included for their fine foliage. Solomon's seal with their elegant grace stand in drifts under the cherry tree. The east and west borders are completely different in character and show both great feeling for the blending of colour and a nice taste in the choice of plants.

Tintinhull House and its garden are an outstanding addition to National Trust properties and certainly all gardeners interested in design and the use of good plants for effect will find inspiration and practical help there.

AWARD OF GARDEN MERIT—LXXXVIII

H. R. Fletcher

421 CAMELLIA JAPONICA 'ALTHAEAFLORA'

Award of Garden Merit, June 9, 1953

In 1739, *Camellia japonica*, with flowers about 2 inches across and composed of 5–7 roundish bright rose or red petals surrounding a centre boss of golden stamens joined not only to one another but to the base of the petals as well, was being cultivated in England, notably by ROBERT JAMES LORD PETRE. It was the first member of the genus to be introduced to European cultivation. Shortly before 1800, various double-flowered forms of the single-flowered *C. japonica* with some or all of the stamens transformed into petals, were introduced from China. For instance in 1792, CAPTAIN CONNOR of the *Carnatic*, East Indiaman, brought from China a plant with flowers 4 inches across with numerous petals, the outer much larger than the inner, and all of a fine dark rose irregularly blotched with white. It became known as *C. japonica* 'variegata,' the Double Striped camellia. Another of CAPTAIN CONNOR'S plants had pure white 4-inch flowers with a great many regularly imbricated petals and was called *C. japonica* 'alba plena,' the Double White. Two years later SIR ROBERT PRESTON imported *C. japonica* 'rubra plena,' the Double Red camellia, with large crimson red flowers of many irregularly shaped petals and resembling in form those of a double hibiscus.

The next introduction, that to Kew about 1806 of the waratah or anemone-flowered camellia, *C. japonica* 'anemoniflora,' was of considerable importance for the future development of *C. japonica* in cultivation. The anemone-flowered variety is a most distinct one. It is well named, for the flowers do indeed resemble those of a large deep red anemone, with 5 or 6 large flat outer petals surrounding a great number of much smaller regularly arranged petals which form a central button

to the flower. Although not so showy and floriferous as many another variety, yet it has been the parent of several magnificent plants; and although it still is in cultivation (there is a large plant in the Wild Garden at Wisley) it has, during the course of the years, been much confused with other varieties.

Between 1810 and 1820 several distinguished cultivators in England, notably the HON. and REV. WILLIAM HERBERT, Messrs. Chandler of the Vauxhall Nursery, and MR. JOSEPH KNIGHT of the King's Road, were paying marked attention to the cultivation of camellias. They were sowing thousands of seeds and were being rewarded with remarkable results. For instance at the Chandler Nursery, from seeds of *C. japonica* 'anemoniflora' several splendid plants were raised. One of these was the deep crimson-red *C. japonica* 'corallina,' with more outer petals than the waratah and of more vigorous and bushy growth. Another was *C. japonica* 'insignis,' very like the waratah, with 7 or 8 dark red outer petals and a central globular mass of small petals variegated with red and white much like a carnation. Another was *C. japonica* 'Woodsii' with large pale red flowers, the three outer rows of large petals surrounding a central mass of smaller ones. Still others were *C. japonica* 'eximia' and *C. japonica* 'concinna' both with deep rose or rose petals as regularly imbricate as those of the Double White.

Two of the best and even to-day two of the finest camellias in cultivation were the large delicate rose-flowered *C. japonica* 'elegans,' with the outer rows of roundish petals surrounding a varying number of smaller petals often splashed with white, and *C. japonica* 'althaeaflora.'

This latter was raised from seeds of *C. japonica* 'anemoniflora' at Chandler's Vauxhall Nursery in 1819. Like most varieties of *C. japonica* it is a splendid evergreen plant, perfectly hardy, of very vigorous growth and good habit and with fine handsome leaves, 4–5 inches long, about 2½ inches broad, elliptical, dark green and beautifully glossy above, paler below, sharply serrated at the margin and tapering and recurved at the apex. The flowers are borne in great profusion and vary in size from 3–4 inches in diameter. The petals are Carmine (H.C.C. 21). Those of the two outer whorls are outward spreading and lie flat; they are obovate, lobed and very faintly toothed at the apex, and are nearly 2 inches long and 1½ inch broad just above the middle. Inside these there is a rather irregular whorl of petals, more or less oblong in shape and entire at the apex, which gradually merge into an irregular central mass of stamens and modified stamens called petaloids. Sometimes this irregular centre is quite conspicuous, at other times much less so. When the centre is well developed the flower has much the appearance of a large double red hollyhock on which account the plant was named 'althaeaflora' (Fig. 1).

It was this plant which was exhibited by SIR GILES LODER (in March 1950), under the name of *C. japonica* 'anemoniflora.' Although quite hardy, like so many other variations of *C. japonica*, the flower buds and flowers are liable to be damaged by spring frosts. Thus it should be

planted not fully exposed but in the partial shade of trees. It should never suffer from drought at the roots nor from too much water at the roots due to poor drainage; both conditions will result in the dropping of the flower buds.

422 COTONEASTER FRANCHETII *var.* STERNIANA

Award of Garden Merit, June 9, 1953

Previous to *C. franchetii* var. *sterniana* (Fig. 11) receiving the Award of Garden Merit, four members of this genus of ornamental shrubs, so many of them brilliant when in fruit and some of them attractive with their spiraea-like flowers, had been likewise honoured. Three of these four are plants which have been in cultivation over a long period of years. *C. frigida* (**A.G.M.** 1925) was introduced to cultivation in 1824; *C. rotundifolia* (**A.G.M.** 1927) in 1825; *C. horizontalis* (**A.G.M.** 1925) round about 1880. The fourth plant, *C. conspicua* var. *decora* (**A.G.M.** 1947) came to us as recently as 1925. With the exception of *C. frigida* all these are prostrate or low-growing trailing plants. Thus the bestowing of this award on another more upstanding plant is all the more welcome.

C. franchetii was described from a plant cultivated by M. MAURICE DE VILMORIN at Les Barres, Loiret, France, and grown from seeds sent by the ABBÉ SOULIÉ in 1895. Its distribution extends from Western Szechwan and Yunnan into Upper Burma, and as in the case of a good many members of this genus there is considerable variation throughout its range. One such variation exists in Upper Burma, where in 1919 FARRER harvested seeds under the number 1324. From these seeds a plant with fruits almost round, instead of almost oblong as in the type plant, was raised by MR. BRUCE GARDNER, and was described and figured in the *Botanical Magazine* in 1950 under tab. 130, by DR. W. B. TURRILL, as *C. franchetii* var. *sterniana*.

In his *Botanical Magazine* article DR. TURRILL compares *C. franchetii* var. *sterniana* with a silver-leaved *Cotoneaster* which was collected by KINGDON-WARD in S.E. Tibet in 1913 and named by PROFESSOR SIR WILLIAM WRIGHT SMITH, *C. wardii*, and states that the Burmese plant differs from WARD's in the shorter flowering branches and in details of flower structure. Certainly the two are very closely allied and much of what is grown in gardens as *C. wardii* is in fact *C. franchetii* var. *sterniana*. For instance in November 1953 five specimens of *Cotoneaster* were submitted to the Society's Floral Committee B, some under the name of *C. wardii*, some under the name of *C. franchetii* var. *sterniana*. DR. TURRILL examined them and named them all *C. franchetii* var. *sterniana*. One of the five had received the Award of Merit in 1939 when shown as *C. wardii* by the late MR. W. J. MARCHANT.

Our plant is a rapid and vigorous grower and its arching and graceful evergreen habit is quite charming. At first the shoots are markedly downy, later becoming shining reddish- or blackish-brown. The leaves are about an inch long, ovate, dark glossy green above and silvery-white

beneath. Short flowering shoots develop from each leaf axil on the previous year's wood and in June each branch is covered with small clusters of pinkish flowers. Gradually the fruits change from green through yellowish-green to orange until by the autumn they are a bright scarlet-red; they persist well into the winter.

Not in the least fastidious as to soil requirements, *C. franchetii* var. *sterniana* reproduces easily by seeds although many of the progeny so produced no doubt will be inferior to the parent. Some, of course, may be better. True stock readily can be obtained from cuttings of firm twigs taken about the end of July.

423 DEUTZIA × ELEGANTISSIMA

Award of Garden Merit, Sept. 22, 1954.

The Deutzias are particularly valuable shrubs for the average garden for they provide flowers in June and onwards, and thus prolong the great flush of spring-flowering shrubs. The species mostly are natives of China, though some are found in Japan and the Himalaya, Formosa, etc. Those in cultivation are deciduous and most of them are quite hardy though some are liable to be hit by late spring frosts in low-lying areas. No special soil is required although they prefer a good loam and plenty of moisture. Neither is any special pruning necessary, although to encourage new growths all old worn-out or overcrowded growths should be removed.

The genus has been extensively hybridized and good though some of the species may be, some of the hybrids are better. LEMOINE of Nancy, early in the present century produced some splendid crosses and one such, *D.* × *magnifica* was given the Award of Garden Merit nearly 30 years ago.

D. × *elegantissima* is another of LEMOINE's hybrids, and frequently still is called by the name under which the originator distributed it, *D. discolor elegantissima*. The parents were the Chinese *D. purpurascens* (at that time regarded as a variety of *D. discolor*), introduced in 1888 and making a spreading shrub with slender branches and handsome star-shaped flowers stained with purple on the outside, and *D. sieboldiana*, an 1885 introduction from Japan and usually a low-growing shrub with rather upright pyramidal clusters of pure white flowers. The hybrid more closely approaches the Chinese parent than the Japanese, although it is characterized by a more upright habit and by broader more abruptly tapered leaves. These are more or less ovate, sharply though irregularly toothed, sparingly covered below with 4–6-rayed hairs, and very shortly stalked. The loose clusters of fragrant flowers, each flower ½ inch across and beautifully tinted with rose, are produced in great abundance so that a well-flowered specimen is a most splendid sight. No difficulty attends propagation which is readily accomplished by means of cuttings of half-ripened shoots placed in gentle bottom heat in July or August or by more fully ripened shoots under a handlight in a shady place.

PLANTS AND PROBLEMS XII

AUTUMN-FLOWERING GENTIANS

Question. For some years I have admired your gentians which give so much colour to the rock garden in the autumn. Unfortunately my plants never seem to do well and I would like to know how you grow them in such bold clumps at Wisley.

Answer. Every year gentians of vigorous habit, such as *sino-ornata* and 'Macaulayi,' are lifted just before growth commences. Each clump is split-up to make several new plants and these are replanted 2 inches apart in a compost of:

1 part of sandy, lime-free loam;
2 parts of acidic peat or leaf-mould;
1 part of coarse, lime-free sand.

But to have the right type of soil is not enough; the site is of equal importance and should be naturally damp and preferably on a north-facing border out of the range of direct sunlight.

REPLANTING LILIES OF THE VALLEY

Question. This year we moved into a different house and although the garden is in a good state we found that lilies of the valley flowered poorly. Can you please suggest why this should be and what steps should be taken to remedy it?

Answer. Probably the reason for lack of flowers on your lilies of the valley is due to overcrowding of the roots. If this is so a fresh site for the plant should be found where the soil is protected from the direct sun and is naturally inclined to be on the damp side. Prior to planting, the site should be thoroughly forked over and enriched with a dressing of leaf-mould and old manure. In the following autumn the old stock of plants should be lifted and the single crowns planted 3 inches apart with the tips an inch below the surface.

After replanting, a bed of lilies of the valley should remain productive for some years although growth should be kept vigorous by making an annual application of bone meal at 2 oz. per square yard followed by a surface mulch of leaf-mould.

A FEW LESS-COMMON VEGETABLES

Question. As I understand that this year seed of all types of vegetables will be rather scarce, due to the poor season last year, I thought that I would like to grow some of the less commonly cultivated vegetables. Please could you recommend some of these suitable for growing in a small garden?

Answer. During the past two years we have had at Wisley in the vegetable trial grounds a few of these less commonly grown vegetables

and from our observations the following may be recommended to provide a variation from those vegetables usually grown.

Corn salad, also known as lamb's lettuce or mâche.—This is a salad plant which may be had all the year round from sowings made in February, April, August and September. The seed should be sown in shallow drills 9 inches apart and seedlings should be thinned to 6 inches apart. During hard weather the plants should be covered with light litter such as bracken or straw.

Celeriac.—This is a useful vegetable for the late autumn or winter and can be used either raw and grated in salads, or cooked. Seed should be sown in March in heat and plants should be set out in May, care being taken not to plant too deeply. Cultivation should be carried out to keep the plants free of weeds and water should be applied abundantly in dry seasons.

Asparagus pea, carlin pea, mange tout pea and purple-podded pea.—Asparagus pea and mange tout pea are both cooked whole as is the purple-podded pea, which, however, also can be shelled and cooked as is the normal garden pea. Carlin pea is dried, shelled and kept for winter use in stews or as a filling for pancakes. All these peas should be grown on ground that has been prepared in the same way as for the garden pea. Asparagus pea grows 18 inches high and the others 5–6 feet high.

SWEET CHERRIES

Question. I have been told that there is no variety of sweet cherry that is self-fertile. Can you tell me please if this is the case, and if so, suggest combinations of varieties that would prove successful? I have a suitable wall with sufficient space for two fan-trained trees.

Answer. The information you have been given is correct. Moreover, most sweet cherry varieties fall into definite groups, all those within any one group being incompatible with one another. For satisfactory results any given variety must be cross-pollinated by another with a similar flowering period from a different group. It is most important therefore that reliable information be obtained with regard to which varieties can be planted together to ensure that good crops result. Suitable combinations include :—

'Early Rivers' (mid to late June) with
either 'Bigarreau Schrecken' (late June)
or 'Merton Bigarreau' (mid to late July)

'Governor Wood' (late June to early July) with
either 'Bigarreau Napoleon' (mid July)
or 'Roundel Heart' (early July)

STRAWBERRY 'AUCHINCRUIVE CLIMAX'

Question. Having read and heard of the widespread breakdown through virus infection of Strawberry 'Auchincruive Climax' I am wondering if this year I am safe in continuing to grow this variety, particularly as I have a fine bed of 'Royal Sovereign' nearby. My 'Climax' plants have given excellent results and have always looked very healthy.

Answer. There are undoubtedly many gardens where 'Auchincruive Climax' is still thriving and as long as the plants remain healthy the variety should be retained. In such instances there should be no danger in growing 'Climax' alongside 'Royal Sovereign.' Any plants which do show the slightest signs of virus infection, however, should be discarded and burnt without delay.

It is where new plants have to be bought that 'Climax' can no longer be recommended as the variety has proved so prone to breakdown.

RED STREAKS ON LEAVES OF HIPPEASTRUM

Question. Please find enclosed bulb of *Hippeastrum* showing the red discoloration of the leaves. I should be grateful if you could tell me the cause of and cure for this type of damage.

Answer. The red streaks on the leaves have been caused by the bulb scale mite, *Tarsonemus laticeps*. The white, microscopic mites congregate in the neck region of the bulbs and in feeding on the developing leaves and flower stems cause red marks and a certain amount of distortion, resulting in inferior blooms.

It should be noted however that a red discoloration is not necessarily diagnostic of mite damage, since other pests, such as mealy bug and glasshouse red spider mites may produce similar symptoms. Therefore, microscopical examination of the bulb for the presence of mites is essential for correct diagnosis.

These mites also attack *Narcissus*; the damage is similar but the symptoms take the form of brown-coloured streaks instead of red.

Since the mites are chiefly found inside the neck region of the bulb, chemical control is not possible. Instead, infested bulbs should be subjected to the warm water treatment in the dormant season; one hour at 110° F. is sufficient to kill the mites.

WORM CASTS ON LAWNS

Question. During spring and late summer my lawn becomes full of wormcasts. What can I do apart from sweeping them up, which is very difficult in a wet summer?

Answer. Although most lawns contain a number of species of earthworms, only two species, namely *Allolobophora nocturna* and *A. longa* produce worm casts. However, since no selective vermicide is available it is necessary to kill all the worms in order to achieve control.

Probably the best substance is colloidal lead arsenate used at the rate of 2 lb. to 1 gallon of water, which is sufficient for 25 square yards. It should be applied with a fine rose watering can when the worms are near the surface in spring or autumn. The advantage of this treatment is that most of the worms die underground where they are not dangerous to poultry or wild birds. As an alternative a non-poisonous substance such as mowrah meal may be used. This is applied at the rate of 4 oz. to the square yard. Rapid results may be obtained with potassium permanganate; ½–1 oz. of the crystals dissolved in one gallon of water is sufficient to treat 1 square yard. The worms come to the surface in a matter of seconds, when they may be swept up.

APPLE BITTER PIT

Question. I am worried because some of my apples are showing dark shadowy spots under the skin and when peeled there are brown spots scattered in the flesh. Can you advise me on this matter?

Answer. Your apples are affected by Bitter Pit, which is not considered to be a parasitic disease but is believed to be a physiological disorder associated with irregular water supplies to the fruit. It is more prevalent on young vigorously growing trees than on older ones and the larger fruits are usually more affected than the smaller ones. It seems to be worse in seasons where there are wide fluctuations in temperature and rainfall and some varieties are more susceptible than others. Trees which are prone to Bitter Pit should be pruned lightly and not fed excessively with nitrogenous manures. Everything should be done to keep growth steady and uniform—for instance on dry soils mulching should be practised to help to conserve moisture. On no account should the fruit be picked in an inmature condition.

LICHENS ON AZALEAS

Question. What is the best way to rid my deciduous azaleas of lichens on their branches?

Answer. The best method of eradicating lichens on deciduous shrubs is to spray when the plants are quite dormant in December/January with caustic soda solution. This is made with 1 lb. caustic soda in 10 gallons water with 1 lb. of soft soap or one of the proprietary spreaders added to make it stick. With this spray, however, the operator should wear goggles, gloves and old clothing.

The next best spray is the ordinary 5 per cent. tar-oil wash for apple trees, but this may need to be used each winter. Some varieties of *Azalea* and also *Pyracantha* will not stand this tar-oil spray and in such cases it would be better to use lime sulphur made to a strength of 1 pint in 2 gallons of water with the addition of a good spreader.

WISLEY TRIALS, 1953–54

RADISH

Sixty-five stocks of Radish were received in 1954 for trial at Wisley. The trial was sown very thinly in drills ½ inch deep and 9 inches apart on March 23, 1954. The trial was inspected by a sub-committee of the Fruit and Vegetable Committee on May 11, 1954, and on its recommendation the Council of The Royal Horticultural Society has made the following awards.

The number in brackets after the description of the stock is that under which it was grown in the trial.

Roots globular, red self

SAXA. (Raised, introduced and sent by Messrs. J. E. Ohlsens Enke, Linnesgade 14, Copenhagen, Denmark.) **A.M.** May 11, 1954.—Plant 1½ inch high; root $\frac{9}{10}$ inch diameter, ⅞ inch long, flattened globular, 10 per cent. above the soil. [15]

SAXA EXTRA SHORT TOP. (Raised, introduced and sent by Messrs. J. L. Clucas Ltd., Ormskirk, Lancashire.) **A.M.** May 11, 1954.—Plant 1⅜ inch high; root $\frac{9}{10}$ inch diameter, ⅞ inch long, flattened globular, 25 per cent. above the soil. [14]

SCARLET GLOBE SELECTED. (Raised, introduced and sent by Messrs. J. L. Clucas Ltd.) **A.M.** May 11, 1954.—Plant 2½ inches high; root 1 inch diameter, $1\frac{1}{10}$ inch long, globular to egg-shaped, 25 per cent. above the soil. [13]

SOUTHERN MARKET GLOBE. (Raised, introduced and sent by Messrs. Ferry-Morse Seed Co., P.O. Box 967, Mountain View, California, U.S.A.) **A.M.** May 11, 1954.—Plant 3 inches high; root $\frac{9}{10}$ inch diameter 1 inch long, globular, 10 per cent. above the soil. [6]

COBEA. (Raised and sent by Messrs. Corns. van Beusekom Westerkade 2, Utrecht, Holland.) **H.C.** May 11, 1954.—Plant 1½ inch high; root 1 inch diameter, ⅞ inch long, globular, 50 per cent. above the soil. [65]

NON PLUS ULTRA IMPROVED. (Raised, introduced and sent by Messrs. J. E. Ohlsens Enke.) **H.C.** May 11, 1954.—Plant 1⅜ inch high; root 1 inch diameter, $1\frac{1}{10}$ inch long, globular, 35 per cent. above the soil. [3]

RED TURNIP SHORT TOP FORCING. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd., 26–29 Drury Lane, London, W.C. 2.) **H.C.** May 11, 1954.—Plant 1½ inch high; root ⅞ inch diameter, $\frac{7}{10}$ inch long, globular, 50 per cent. above the soil. [1]

SCARLET GLOBE SELECTED. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd.) **H.C.** May 11, 1954.—Plant 2½ inches high; root 1½ inch diameter, 1 inch long, globular, 25 per cent. above the soil. [10]

SELECT SAXA. (Raised, introduced and sent by Messrs. Elsoms (Spalding) Ltd., Elsom House, Spalding, Lincolnshire.) **H.C.** May 11, 1954.—Plant 1½ inch high; root $\frac{9}{10}$ inch diameter, 1 inch long, globular, 10 per cent. above the soil [19]

Roots globular, red with white tip

BRILLIANT. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd.) **A.M.** May 11, 1954.—Plant 2½ inches high; root $\frac{9}{10}$ inch diameter, $1\frac{1}{10}$ inch long, globular, 10 per cent. above the soil. [33]

GAUDRY HUNDERUP. (Raised, introduced and sent by Messrs. L. Daehnfeldt Ltd., 75 Vestergade, Odense, Denmark.) **H.C.** May 11, 1954.—Plant 1 inch high; root $\frac{9}{10}$ inch diameter, ⅞ inch long, globular, 20 per cent. above the soil. [27]

SPARKLER SELECTED. (Sent by Messrs. W. Deal & Sons Ltd., Kelvedon, Essex.) **H.C.** May 11, 1954.—Plant 2¾ inches high; root 1 inch diameter, $\frac{7}{10}$ inch long, globular, 10 per cent. above the soil. [29]

Roots cylindrical, red with white tip

FRENCH BREAKFAST RESELECTED. (Sent by Messrs. W. Deal & Sons Ltd.) **A.M.** May 11, 1954.—Plant 1½ inch high; root ½ inch diameter, 1⅝ inch long, cylindrical, 50 per cent. above the soil. [39]

FRENCH BREAKFAST. (Raised, introduced and sent by Messrs. Elsoms (Spalding) Ltd.) **H.C.** May 11, 1954.—Plant 2 inches high; root ½ inch diameter, 1½ inch long, cylindrical, 40 per cent. above the soil. [45]

FRENCH BREAKFAST SELECTED. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd.) **H.C.** May 11, 1954.—Plant 2 inches high; root ⅝ inch diameter, 1⅝ inch long, cylindrical, 50 per cent. above the soil. [42]

LONG SCARLET WHITE TIP HUNDERUP. (Raised, introduced and sent by Messrs. L. Daehnfeldt Ltd.) **H.C.** May 11, 1954.—Plant 2½ inches high; root ½ inch diameter, 1½ inch long, cylindrical, 50 per cent. above the soil. [49]

ORLEANS FORCING. (Raised, introduced and sent by Messrs. L. Clause, S.A., Brétigny-sur-Orge (S. et O.), France.) **H.C.** May 11, 1954.—Plant 4 inches high; root $\frac{7}{10}$ inch diameter, 1⅝ inch long, cylindrical, 50 per cent. above the soil. [55]

Roots tapering, red self

WOOD'S FRAME RESELECTED. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd.) **H.C.** May 11, 1954.—Plant 4 inches high; root $\frac{7}{10}$ inch diameter, 4 inches long, tapering, 40 per cent. above the soil. [60]

Roots tapering, white self

SHORT TOP ICICLE. (Raised, introduced and sent by Messrs. Ferry-Morse Seed Co.) **H.C.** May 11, 1954.—Plant 3 inches high; root $\frac{7}{10}$ inch diameter, 3½ inches long, tapering, 25 per cent above the soil. [62]

SPINACH

Forty-five stocks of Spinach were received in 1953 for trial at Wisley. The trial was sown in shallow drills 1 foot apart on March 13, 1953, and again on September 15, 1953. The plants were thinned finally to 9 inches apart in the rows.

The trial was inspected by a sub-committee of the Fruit and Vegetable Committee on May 28, 1953, and April 29, 1954, and on its recommendation the Council of The Royal Horticultural Society has made the following awards.

The number in brackets after the description of the stock is that under which it was grown in the trial.

Variety suitable for spring and autumn sowing
Seed round

FIRST CROP. (Sent by Messrs. L. Daehnfeldt Ltd., 75 Vestergade, Odense, Denmark.) **A.M.** April 29, 1954.—Plant 9 inches high, 12 inches across, compact, fairly erect habit. Leaves 11½ inches long, 8 inches wide, arrow-shaped, light green, surface slightly blistered. [3]

Varieties suitable for spring sowing
Seed round

BEST OF ALL SLUSIA. (Raised, introduced and sent by Messrs. Abraham Sluis Zaadteelt & Zaadhandel N.V., Enkhuizen, Holland.) **A.M.** May 28, 1953.—Plant 9 inches high, 21 inches across, fairly compact habit. Leaves 9½ inches long, 7 inches wide, arrow-shaped blunt-pointed, medium green, surface slightly blistered. [4]

GAUDFLAY. (Raised, introduced and sent by Messrs. N. V. Sluis en Groot's Koninklijke Zaadteelt, Enkhuizen, Holland.) **A.M.** May 28, 1953.—Plant 11 inches high, 16 inches across, very compact, solid habit. Leaves 8 inches long, 7 inches wide, arrow-shaped, medium green, surface slightly blistered. [21]

KING OF DENMARK IMPROVED. (Raised, introduced and sent by Messrs. J. E. Ohlsens Enke, Linnesgade 14, Copenhagen, Denmark.) **A.M.** May 28, 1953.—Plant 8½ inches high, 22 inches across, spreading, loose habit. Leaves 8½ inches long, 6 inches wide, arrow-shaped, medium to dark green, surface slightly blistered. [11]

MATADOR IMPROVED. (Raised, introduced and sent by Messrs. J. E. Ohlsens Enke.) **A.M.** May 28, 1953.—Plant 11 inches high, 21 inches across, compact, erect habit. Leaves 9½ inches long, 8½ inches wide, arrow-shaped, medium green, surface slightly blistered. [18]

VIKING. (Raised, introduced and sent by Messrs. N. V. Sluis en Groot's Koninklijke Zaadteelt.) **A.M.** May 28, 1953.—Plant 8 inches high, 18 inches across, compact, erect habit. Leaves 9 inches long, 9 inches wide, arrow-shaped, medium green, surface slightly blistered. [15]

BROAD LEAF. (Raised, introduced and sent by Messrs. J. L. Clucas Ltd., Ormskirk, Lancashire.) **H.C.** May 28, 1953.—Plant 10 inches high, 18 inches across, erect, loose habit. Leaves 10 inches long, 7½ inches wide, arrow-shaped, light medium green, surface smooth. [6]

GAUDFLAY. (Raised by Messrs. N. V. Sluis en Groot's Koninklijke Zaadteelt, introduced and sent by Messrs. J. L. Clucas Ltd.) **H.C.** May 28, 1953.—Plant 10 inches high,18 inches across, compact, erect habit. Leaves 9 inches long, 7½ inches wide, arrow-shaped, medium green, surface slightly blistered. [22]

KING OF DENMARK. (Sent by Messrs. W. Deal & Sons Ltd., Kelvedon, Essex.) **H.C.** May 28, 1953.—Plant 12 inches high, 24 inches across, loose habit. Leaves 10 inches long, 7½ inches wide, arrow-shaped, medium green, surface slightly blistered. [10]

KING OF DENMARK. (Raised, introduced and sent by Messrs. J. E. Ohlsens Enke.) **H.C.** May 28, 1953.—Plant 8 inches high, 21 inches across, spreading, loose habit. Leaves 12 inches long, 10 inches wide, arrow-shaped, medium green, surface slightly blistered. [13]

NOBEL. (Sent by Messrs. W. Deal & Sons Ltd.) **H.C.** May 28, 1953.—Plant 10 inches high, 18 inches across, compact, erect habit. Leaves 10 inches long, 9 inches wide, arrow-shaped, medium green, surface slightly blistered. [23].

NOBEL. (Raised, introduced and sent by Messrs. A. R. Zwaan & Son, Voorburg, The Hague, Holland.) **H.C.** May 28, 1953.—Plant 6 inches high, 16 inches across, very compact habit. Leaves 8½ inches long, 6¼ inches wide, arrow-shaped, medium green, surface slightly blistered. [25]

SELANDIA. (Raised, introduced and sent by Messrs. J. E. Ohlsens Enke.) **H.C.** May 28, 1953.—Plant 7 inches high, 12 inches across, compact

habit. Leaves 8 inches long, 7 inches wide, arrow-shaped, medium green, surface slightly blistered. [32]

TROUBADOUR. (Raised by Messrs. Zwaan & de Wiljes, Scheemda, Holland, introduced and sent by Messrs. Elsoms (Spalding) Ltd., Elsom House, Spalding, Lincolnshire.) **H.C.** May 28, 1953.—Plant 9 inches high, 18 inches across, compact and fairly erect. Leaves 8 inches long, 7½ inches wide, arrow-shaped, light medium green, surface smooth. [5]

Seed prickly

NEW GIANT LEAVED PRICKLY. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd., 26–29, Drury Lane, London, W.C. 2.) **A.M.** May 28, 1953.—Plant 9 inches high, 18 inches across, compact habit. Leaves 10½ inches long, 11 inches wide, arrow-shaped, light green, surface slightly blistered. [35]

AMSTERDAM GIANT. (Raised, introduced and sent by Messrs. N. V. Sluis en Groot's Koninklijke Zaadteelt.) **H.C.** May 28, 1953.—Plant 9 inches high, 20 inches across, compact habit. Leaves 9 inches long, 8 inches wide, arrow-shaped, medium green, surface slightly blistered. [41]

STANDWELL PRICKLY. (Raised, introduced and sent by Messrs. Elsoms (Spalding) Ltd.) **H.C.** May 28, 1953.—Plant 9 inches high, 18 inches across, compact habit. Leaves 9½ inches across, 8½ inches long, arrow-shaped, medium green, surface slightly blistered. [45]

Varieties suitable for autumn sowing

Seed round

AUTUMN GIANT. (Raised, introduced and sent by Messrs. N. V. Sluis en Groot's Koninklijke Zaadteelt.) **A.M.** April 29, 1954.—Plant 6 inches high, 12 inches across, compact, erect habit. Leaves 9 inches long, 6½ inches wide, arrow-shaped, light green, surface slightly blistered. [34]

MATADOR ASCO. (Sent by Messrs. Chr. Olsen Ltd., Odense, Denmark.) **A.M.** April 29, 1954.—Plant 7 inches high, 12 inches across, erect, loose habit. Leaves 9½ inches long, 8 inches wide, arrow-shaped blunt-pointed, medium green, surface slightly blistered. [20]

VIROFLAY. (Raised, introduced and sent by Messrs. N. V. Sluis en Groot's Koninklijke Zaadteelt.) **A.M.** April 29, 1954.—Plant 7½ inches high, 12 inches across, compact, erect habit. Leaves 9 inches long, 5½ inches wide, arrow-shaped, medium green, surface slightly blistered. [27]

GREENLEAF ROUND. (Raised, introduced and sent by Messrs. Elsoms (Spalding) Ltd.) **H.C.** April 29, 1954.—Plant 8 inches high, 12 inches across, compact, low-growing habit. Leaves 8 inches long, 7½ inches wide, arrow-shaped, medium green, surface slightly blistered. [24]

ODIN. (Raised, introduced and sent by Messrs. Chr. Olsen Ltd.) **H.C.** April 29, 1954.—Plant 7 inches high, 12 inches across, compact, erect habit. Leaves 8½ inches long, 6½ inches wide, arrow-shaped, medium green, surface slightly blistered. [17]

VIROFLAY IMPROVED. (Raised, introduced and sent by Messrs. J. E. Ohlsens Enke.) **H.C.** April 29, 1954.—Plant 8½ inches high, 12 inches across, compact habit. Leaves 9½ inches long, 7 inches wide, arrow-shaped, medium green, slightly blistered. [28]

Seed prickly

NEW IDEAL WINTER BROADLEAVED. (Raised, introduced and sent by Messrs. Cooper, Taber & Co., 90 Southwark Street, London, S.E. 1.) **A.M.** April 29, 1954.—Plant 8 inches high, 12 inches across, compact habit. Leaves 9½ inches long, 9½ inches across, arrow-shaped, medium green, surface slightly blistered. [37]

BOOK NOTES

"Pierre Joseph Redouté Roses." Selected and introduced by Eva Mannering. 4to. Illus. colour. (The Ariel Press.) 25*s.* net.

Ever since Redouté's great work *Les Roses* was first published in 1817, his exquisite colour plates have been prized and appreciated by art lovers and rose lovers alike. The Ariel Press have just issued the latest reproduction of twenty-four of Redouté's prints, selected by Eva Mannering who has written the introduction with a brief account of his life. These plates were printed in Germany and are of the highest quality. It is astonishing that so faithful a reproduction can be done for the modest price of 25*s.* The colour seems to be accurate and delicate, the shading of the leaves being particularly well rendered. The text, which is in French, is taken from the descriptions by the botanist, Claude-Antoine Thory (1759–1827), who described the roses in Redouté's original work.

It is difficult to say whether any of these old roses are still in cultivation ; however, the beautiful plate of *Rosa alba regalis* seems to be the rose now known as 'Celestial', which has the sweetest scent of all old roses.

It would have been convenient if there had been numbers on the plates to connect up with the descriptions.

The paper and printing of the text are excellent and the Ariel Press are to be congratulated on producing a book of such high quality at such a reasonable price. It will make a delightful present, especially for any lover of old-fashioned roses.

F. C. STERN

" The Vegetable Garden." By E. R. Janes. 272 pp. Illus. Penguin Books. 2*s.* 6*d.*

The author in his foreword indicates that this book is intended primarily for the beginner, but Mr. Janes has written much to interest the more experienced, the exhibitor and the epicure.

The Vegetable Garden contains a refreshing approach to the age-old problem of variety from, to quote the author, "taters and greens." The cooking of radish, parsley and young pea plants thinned from the rows, together with the cultivation of *Portulaca, Martynia fragrans* and *Okra*, are suggestions that contribute much to horticultural interest and culinary skill.

Mr. Janes proceeds methodically from soils and crop rotation to individual crops concluding with pests and disease together with sowing chart.

The frequent reference to H.E.T.P. as a control for vegetable pests is surprising in view of the regulations and restrictions placed upon its use in commerce.

Seldom, if ever, has it been possible to obtain so much valuable information, gained from such an experienced exhibitor for such a low price as half a crown. This provides an opportunity for every student of horticulture and also owners of vegetable plots, large or small, to have on his bookshelf a ready aid to all the problems he may encounter during his efforts of vegetable cultivation.

FRANCIS HANGER

ORDERS FOR BOOKS

The Society does not sell any publications other than its own. Orders for books reviewed should therefore be sent direct to the booksellers and not to the offices of the Society,

ERRATUM

Rhododendron 'Titness Park' **A.M.** March 30, 1954, described in R.H.S. JOURNAL 79, 416 (Sept. 1954).

We have been informed that this rhododendron was shown on behalf of LT.-COL. J. N. HORLICK, O.B.E., M.C., Isle of Gigha, Argyle, who was the raiser.

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R. H. S. YEAR BOOKS

RHODODENDRON AND CAMELLIA

To the growers of both these genera the illustrated article on Leonardslee will be of particular interest, for the large collection includes fine plants of the older Camellias and Rhododendrons, together with many of the newer introductions. The article on Colonsay describes the growing of Rhododendrons, especially those in the large-leaved series, on a windswept island on the west coast of Scotland. Mr. H. G. Hillier's account of new Camellia Hybrids is a summary of the important developments in the last twenty years in Britain. Mr. G. H. Pinckney comments on hardy hybrid deciduous Azaleas and Mr. L. F. Frisbee of the Tacoma Rhododendron Society writes about *R. occidentale* in its native habitat on the west coast of the U.S. Capt. Neil McEacharn's account of Camellias at the Villa Taranto in Northern Italy is of interest to Camellia enthusiasts, as is Mr. J. Souster's description of the method of propagating *C. reticulata* at Kew. There are reports of Shows, both here and in the U.S., Trials, Awards and a list of the Rhododendron Hybrids registered since 1953.

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LILY

Mrs. J. Norman Henry completes her account of Lilies in her garden in Pennsylvania, describing the North American species, many of which she collected in the wild. This, coupled with an interesting and informative account of Dr. A. M. Vollmer's quest for native Lilies in California and Miss E. Field's competent paper on North American Lilies and their culture at a Lily Group Discussion, focuses attention on a group of Lilies which is steadily gaining in popularity. The Dowager Marchioness of Londonderry describes Lilies at Mount Stewart in Northern Ireland. Of unusual interest is Dr. Norma E. Pfeiffer's illustrated account of her new hybrids of *L. auratum* × *L. japonicum* and *L. rubellum*. Mr. F. Kingdon-Ward tells of his discovery of the new epiphytic Lily during his recent expedition to Upper Burma. Col. F. C. Stern comments on some of his new hybrids and Mr. F. J. Rose gives practical advice on when and where to plant Lilies in the average garden. Mr. T. H. Findlay describes the Lily collection at Windsor and the method used there of propagating from scales. Mrs. E. B. Trundle outlines the numerous activities of the Lily Committee of the Garden Club of Virginia. There are also reports of the Lily Group Exhibit and descriptions of plants which gained awards.

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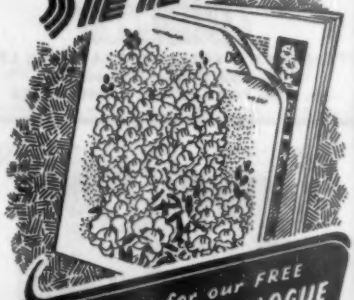

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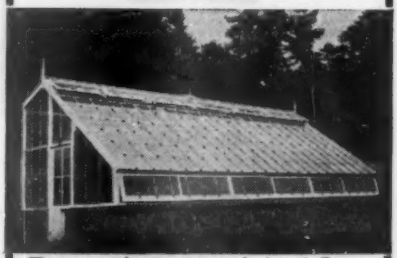

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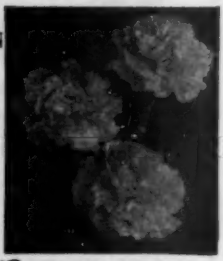

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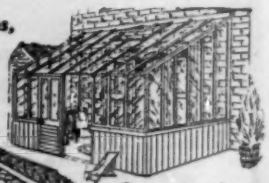

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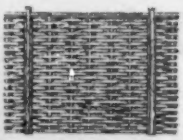

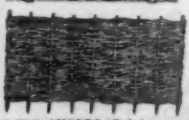

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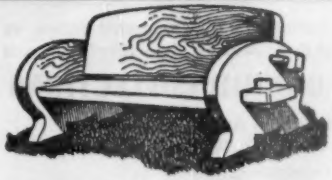

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